

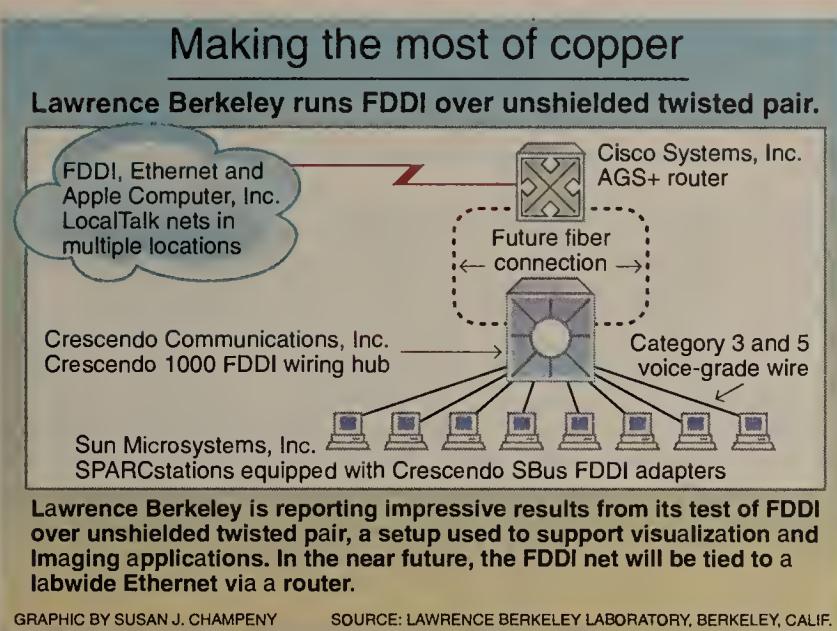
Net face-lift on tap for Windows 3.1

By Margie Wylie
Senior Editor

REDMOND, Wash. — The hoopla surrounding the release of Windows 3.1 will still be ringing in users' ears when Microsoft Corp. later this year introduces networking extensions bundled with the operating system, a package insiders are calling "Windows Plus."

According to sources, Microsoft plans to release concurrently with Windows NT a package that includes its DOS-based Windows 3.1 and several networking extensions. Those extensions will make Windows 3.1 equivalent in functionality, if not power, to the 32-bit Windows NT operating system. Windows NT is a version of a graphical operating system based on Microsoft's own Unix-like New Technology kernel.

The package is expected to include peer-to-peer file and print services (code-named Sparta and based on Microsoft's LAN Manager) and a peer-to-peer messaging facility that can act as front-end Messaging Application Programming Interface (MAPI)-compliant (continued on page 55)



GRAPHIC BY SUSAN J. CHAMPEY

SOURCE: LAWRENCE BERKELEY LABORATORY, BERKELEY, CALIF.

Pioneering user installs FDDI with a wiring twist

By Bob Brown
Senior Editor

BERKELEY, Calif. — A year ago, Bob Fink figured it was inevitable that every office at the University of California's Lawrence Berkeley Laboratory would have to be rewired with fiber.

Today, Fink believes Lawrence Berkeley, a Department of Energy-funded national research lab here, may be able to avoid all that work and expense. The laboratory is one of the first users of a Fiber Distributed Data Interface network on unshielded twisted-pair wiring, and the results have been encouraging so far. Fink, the lab's head of communications and networking resources, is convinced FDDI over unshielded twisted pair will be a viable, low-cost alternative to fiber.

"Anybody that wants FDDI should be looking at twisted-pair FDDI," Fink said. "There's no question about it." Fink, who is also chairman of the ANSI working group on low-cost fiber for FDDI, is still a strong proponent of fiber. Although voice-grade unshielded twisted pair can cost as much as a (continued on page 8)

Wellfleet preps new router mgmt. wares

Site Manager puts SNMP to new uses, offers advanced control and configuration capabilities

By Maureen Molloy
Staff Writer

BEDFORD, Mass. — Wellfleet Communications, Inc. next month will unveil a new breed of management software that uses SNMP to not only monitor its bridge/routers, but also to configure and control the devices.

The new Site Manager is an application that will run under Wellfleet's own or any other firm's Simple Network Management Protocol-based management system. It will use SNMP's GET and SET commands to offer a new level of control over Wellfleet devices.

For example, the application will enable an administrator to call up a graphical image of a Wellfleet router, reconfigure it and download new software.

According to analysts, Wellfleet is among the first internetworking vendors to provide an SNMP application capable of both controlling and monitoring devices.

"Wellfleet gear will now be doing everything via SNMP, so us-

ers can employ SNMP for a much broader set of management applications," said Joseph Gottlieb, senior research analyst at the (continued on page 8)

BT enhances its ExpressLane public frame relay service

	Existing	Enhanced
Net switch used	BT North America, Inc. Packet Engine	Packet Engine and StrataCom, Inc. IPX
Access port speed	56K/64K bit/sec	Up to 2.048M bit/sec
Coverage	U.S. only	The U.S., Europe and the Far East
Availability	Now	October for IPX
Beta tests	Not applicable	June

GRAPHIC BY SUSAN J. CHAMPEY

BT unit to boost frame relay service

By Bob Wallace
Senior Editor

SAN JOSE, Calif. — BT North America, Inc. this week is expected to detail improvements to its public frame relay service that will bring it up to speed with competing offerings.

BT North America will outline plans to build a massive overlay network of StrataCom, Inc. IPXs that will enable the service provider to offer frame relay port access speeds up to 2.048M bit/sec, said a source who requested anonymity. The carrier currently offers access speeds of 56K/64K bit/sec on the packet switches that anchor its ExpressLane frame relay service.

BT North America decided to go with StrataCom IPXs because it faced problems in upgrading (continued on page 54)

NETLINE

MAJOR USER, INDUSTRY groups to push for uniform standards. Page 4.

BANYAN HINTS AT public offering, promises product blitz. Page 4.

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ARMY DETAILS PLAN to set up global net to share CALS data with NATO partners. Page 6.

CHICAGO FLOODS SEND net managers sloshing for disaster recovery sites. Page 8.

FEATURE

Vendors face high hurdles to build groupware base

By Bruce Guptill
Special to Network World

Groupware suppliers have cleared many hurdles in the race to usher the technology to market, but buyers' tepid interest is shaping up as the vendors' most formidable obstacle.

There are many reasons for the current groupware malaise, but perhaps the greatest is the uncertainty users have about groupware's impact on



their businesses.

"The primary reason groupware has lagged is most people aren't sure how these products are going to help them," says Christine Bullen, assistant director of the Center for Information Systems Research at the Massachusetts Institute of Technology. "Most companies are just struggling to understand how to use these new tools." (continued on page 41)

DEC moves toward opening up its management system

Unveils Ultrix version of DECmcc Director plus new monitoring applications for Ultrix, SunOS.

By Jim Duffy
Senior Editor

MAYNARD, MASS. — Digital Equipment Corp. last week made more open systems overtures by unveiling a new version of its DEC Management Control Center (DECmcc) Director system that runs under Ultrix and includes expanded TCP/IP management.

In addition, DEC moved to bolster its Unix systems management capabilities by unwrapping new and enhanced applications for monitoring Ultrix and Sun Microsystems, Inc. SunOS environments.

Version 1.2 of DECmcc Direc-

tor runs under DEC's Unix-based Ultrix operating system as well as its proprietary VMS environment. Version 1.2 incorporates a number of new features, including automatic graphical representation and configuration of nodes on DECnet, Transmission Control Protocol/Internet Protocol and Fiber Distributed Data Interface nets, plus more detailed notification of network events.

Version 1.2 also expands upon DECmcc Director's Simple Network Management Protocol management functions, including support for a new set of DEC and

(continued on page 53)

NCR to outfit Mead Data for client/server platform

Deal includes Unix server, Cooperation software.

By Wayne Eckerson
Senior Editor

DAYTON, Ohio — Mead Data Central, Inc. last week awarded NCR Corp. a multimillion-dollar contract for hardware and software that will enable the information services provider to migrate internal applications from an IBM mainframe to a distributed, client/server platform.

The contract calls for Mead Data, supplier of the LEXIS/NEXIS information retrieval services, to purchase a number of NCR System 3000 Unix servers and its Cooperation software, a key component of NCR's Open

Cooperative Computing Architecture (OCCA).

Cooperation is an application development tool kit that enables customers to set up a client/server computing environment in which users can transparently access data and applications residing on multivendor hosts and servers across a network. It supports a proprietary graphical user interface that integrates data from diverse sources and presents it in a common format.

The new hardware and software will be used to support a variety of internal applications —

(continued on page 55)

Start-up Cameo introduces low-cost Ethernet hub line

By Joanne Cummings
Staff Writer

NASHUA, N.H. — Start-up Cameo Communications, Inc. is expected to unveil next month its first products, a line of intelligent Ethernet hubs designed to offer high performance at prices as low as \$149 per managed port.

The new company, which was founded by former AT&T and Bytex Corp. executives, is planning to launch the UltraHub 5000, a chassis that can support four separate Ethernets and 132 ports, and the UltraHub 1000, a line of lower end 12-port Ethernet hubs. The equipment can be managed

using a new Microsoft Corp. Windows-based Simple Network Management Protocol system called UltraView.

Cameo said the products are designed to offer what it considers to be "commodity functionality" at an attractive price. "The average end user [in the Ethernet hub market] is being ripped off," said Alan Brind, executive vice-president of sales and marketing. "We're offering this commodity technology, with some extra features, in a reliable, attractive package — sort of SynOptics technology at a David Systems

(continued on page 52)

Briefs

IBM to roll out Token-Ring products. As expected, IBM will announce Tuesday support for 16M bit/sec Token-Ring Networks over unshielded twisted-pair wiring ("IBM execs detail firm's LAN course for the '90s," NW, April 13). At the same time, analysts expect IBM to improve the filtering capability of its existing Token-Ring adapters to support the higher speed net.

IBM will also enhance its 8230 Controlled Access Unit (CAU) to handle unshielded twisted-pair connections. The enhancement will let users upgrade their CAU instead of having to swap out all their existing 4M/16M bit/sec adapter cards, analysts said.

DEC targets LAN-based multimedia market. Digital Equipment Corp. last week said it plans to release in the third quarter multimedia products for local-area network-attached personal computers that let users capture, store, retrieve, display, edit, print and distribute full-motion or still-frame video with synchronized audio. The products will include hardware that lets a PC capture audio and video data as well as software in order to manage the capture and display of audio, still images and full-motion video. DEC will also deliver server software that allows real-time distribution of multimedia information, including the ability to display digital video on a PC from a file on a server.

AT&T offers congestion relief. AT&T last week filed a new generally available Tariff 12 optional feature, dubbed Virtual Telecommunications Network Service (VTNS) Split Access Flexible Egress Routing (SAFER). VTNS SAFER allows incoming calls connected via T-1 access to be rerouted to an alternate 4ESS switch location in the event of network congestion.

Russia gets public data net. Sprint Corp. last week announced that its Sprint Networks unit will build and operate what it bills as Russia's first nationwide public data network. The net will provide high-speed, local data communications between most major Russian cities and will enable Russian users to access SprintNet, which serves 108 countries, through nodes in a number of Russian cities.

PacTel studies spin-off. Pacific Telesis Group last week said it has launched a study of its business structure, including the possibility of spinning off its Pacific Bell and Nevada Bell telephone companies. The study will look at how such a spin-off would affect the competitiveness and value of the company. The group's board of directors said the business study was initiated as a response to the restrictions imposed on the regional Bell holding companies under the 1982 Consent Decree, which forbids RBHCs from offering long-haul phone service and manufacturing equipment.

FCC opens debate on AT&T offerings. The Federal Communications Commission opened for public comment a debate over whether 800 services should be allowed in Tariff 15 offerings and whether the "competitive necessity" doctrine validates the need for off-tariff price-matching plans. The FCC was acting on a request from the U.S. Court of Appeals for the District of Columbia to reconsider an August ruling in which the agency rejected customer-specific discounts AT&T offered Resort Condominiums International, Inc. because they were "unreasonably discriminatory." The FCC will accept comments until May 21.

CONTACTS



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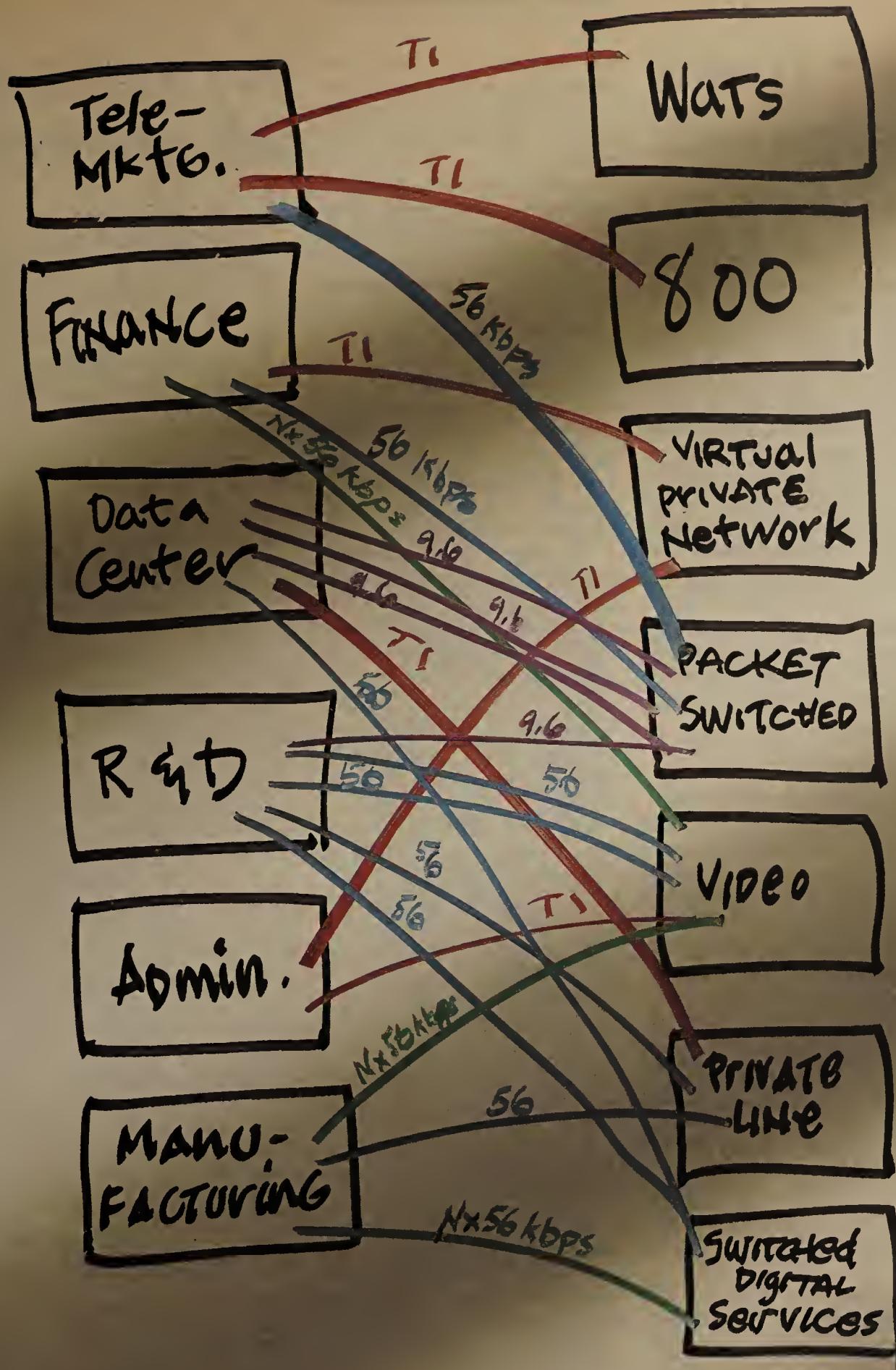
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Standards and user groups discuss universal approach

Users to benefit from common IS, telecom rules.

By Anita Taff
Washington Bureau Chief

ORLANDO, Fla. — In a move to simplify and improve standards development, 14 standards and user groups from North, South and Central America agreed last week to start work on a uniform set of standards.

The decision, reached at the Americas Telecommunications Standards Symposium (ATSS), should benefit users by enabling them to employ one set of telecommunications and information systems standards throughout the region. It may also benefit users by boosting the strength of standards bodies representing them in international negotiations.

ATSS, which was meeting for the first time here, was established to help the multiple standards groups working in the Americas better coordinate their efforts as well as give users a chance to participate in the standards process.

The symposium is the brainchild of the T1 Committee of the Exchange Carriers Standards Association, a group formed to develop standards for interconnect-

ing local and long-distance networks since the breakup of the Bell system at divestiture.

The 14 standards bodies and user groups attending the meeting last week included the International Communications Association, the North American ISDN Users' Forum, the Corporation for Open Systems International, the Telecommunications Industry Association, ANSI's X.3 Committee and the Institute of Electrical and Electronics Engineers, Inc.

Standards groups from Canada, Mexico, Brazil and the Inter-American Telecommunications Conference (CITEL) also attended the meeting.

All for one

Speakers told ATSS attendees that if the groups in the Americas do not pull together, their countries risk being shut out of the international standards decisions.

"The message is clear: We in the Americas must join together to promote and influence the development of worldwide telecommunications standards," said Paul Racine, chairman of the Telecommunications Standards

Advisory Council of Canada. "We must do this quickly if we want to be part of the global telecommunications standardization process."

Racine said other countries are forming voting blocks in the standards effort. As an example, he pointed to the recent World Administrative Radio Conference (WARC) held in Barcelona, Spain. The European Community, backed by 27 other countries in Europe, Eastern Europe and Africa, worked together as a voting bloc to push through a number of issues.

"If this repeats itself at CCITT meetings, then we'll have a big problem," Racine said.

Elizabeth Adams, managing director of the Network Management (NM) Forum, agreed that standards bodies in the Americas must move quickly. The NM Forum, a group with 100 vendor and user members from 18 countries, was formed to develop common network and systems management standards at a time when few standards existed.

Robert Kennedy, vice-president of network architectures at Northern Telecom, Inc., said standards groups are aware that they must fix the process. "Users anticipate unified features" in products worldwide, he said. "It's essential that standards groups complement each other rather than compete."

(continued on page 53)

Banyan execs hint that firm will soon go public

By Caryn Gillooly
Senior Editor

CHICAGO — Banyan Systems, Inc. executives last week all but confirmed the company's long-standing plans to go public and mapped out an aggressive product strategy for the rest of the year.

Banyan, with the planned product announcements, Initial Public Offering (IPO) and recent marketing agreements, is in its strongest position ever to boost its market share and compete more effectively with Novell, Inc., according to analysts.



James D'Arezzo

"The bad news is we can't say anything about it now," he said. "But the good news is our lawyers tell us we can't say anything about it now," insinuating IPO plans are already underway.

Although Banyan executives refused to comment further, analysts said the time is ripe and predicted the move would be made by June. "If they're going to go, now would be the right time to do it, before [Novell releases NetWare] 3.2," said Charles Robbins,

director of communications research at Aberdeen Group, Inc., a consultancy based in Boston. "This way, in their prospectus they can talk about what they'll do to combat 3.2."

Waiting until after NetWare 3.2 comes out could be disastrous, he added, pointing out that if NetWare 3.2 is a "gangbusters"

product, Banyan will have a hard time persuading people to invest in VINES.

Assuming Banyan does go public within the next few months, analysts agreed the company and its customers will see virtually all positive results.

"They'll have more money when they go public, and that should help their competitive positioning" against firms such as Novell and Microsoft Corp., said Jack Karp, vice-president and director of desktop computing strategies at the META Group, a research firm in Westport, Conn.

Robbins agreed, saying the money would give Banyan the opportunity to add some of the features their competitors have — such as electronic-mail and backup software — to VINES. "With the extra cash, they could even buy a young software development company" to help in these efforts, he said.

Another advantage would be the heavy scrutiny a public company receives from the rest of the industry. According to Karp, Banyan has been slow in providing connectivity and interoperability with other platforms.

Finally, going public would force the industry to take Banyan

(continued on page 55)

Two RBHCs launch medical info services businesses

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — Ameritech and BellSouth Corp. last week each exercised their new freedom in the information services market by launching new businesses to process information for the health care industry.

BellSouth Enterprises, Inc. purchased Alpharetta, Ga.-based Cooperative Healthcare Networks, Inc. for an undisclosed sum, while Ameritech launched the Wisconsin Health Information Network (WHIN), a venture with hospitals and insurers to link nets for data exchange.

In addition, Ameritech also entered the vehicle-tracking business, announcing the start of MobileVision, Inc. with Indianapolis-based Mets Corp.

The new businesses mark the first major ventures into information services for both Ameritech and BellSouth since the Modified Final Judgment ban on the regional Bell holding companies' entry into information services was lifted last November.

Cooperative Healthcare provides StatLink, a software package, to 1,200 physicians for submitting health claims and other information electronically to over 70 insurance providers.

For the insurer, the mainframe-based system operated by Cooperative Healthcare processes

es the patient information from the physician, validating and formatting it according to the insurance provider's requirements.

Ameritech has also recognized opportunities in the medical industry. Ralph Wakerly, director of regional health care networks at Ameritech, said there are at least 10 incompatible network-based medical systems developed by health insurance companies or hospitals in Wisconsin that could be integrated for broader information sharing.

To remedy that, Ameritech has set up WHIN, and is inviting investor and membership participation from hospitals, insurers and physicians.

Milwaukee-based Aurora Health Care, Inc., one of the first hospital groups to join WHIN, has asked Ameritech to link its mainframe system to other insurers and claims processors.

"Our system is already exchanging information among hospitals, labs and physicians," said Diane De La Santos, an Aurora spokeswoman.

Ameritech also announced MobileVision, a business venture offering three wireless data services: emergency roadside assistance, stolen vehicle location and fleet management. Ameritech said MobileVision could provide \$300 million in annual revenue by the year 2000.

Fibermux, Wellfleet agree to develop routers for hub

Fibermux to have access to Wellfleet technology.

By Joanne Cummings
Staff Writer

CHATSWORTH, Calif. — Fibermux Corp. this week is expected to announce it will license Wellfleet Communications, Inc.'s routing software and the two companies will jointly develop routing modules for Fibermux's Crossbow hub.

According to the agreement, which should be finalized by the third quarter, Fibermux will have access to all of Wellfleet's current routing technology and future upgrades. Wellfleet signed a similar agreement with Bytex Corp. in January ("Wellfleet to provide module for Bytex hub," NW, Jan. 27).

The agreement calls for Fibermux and Wellfleet to jointly develop both local- and wide-area network router modules for the Crossbow intelligent wiring hub.

WAN support is expected to include frame relay and X.25 networks at speeds up to 2M bit/sec, Fibermux said. The token-ring and Ethernet modules will be

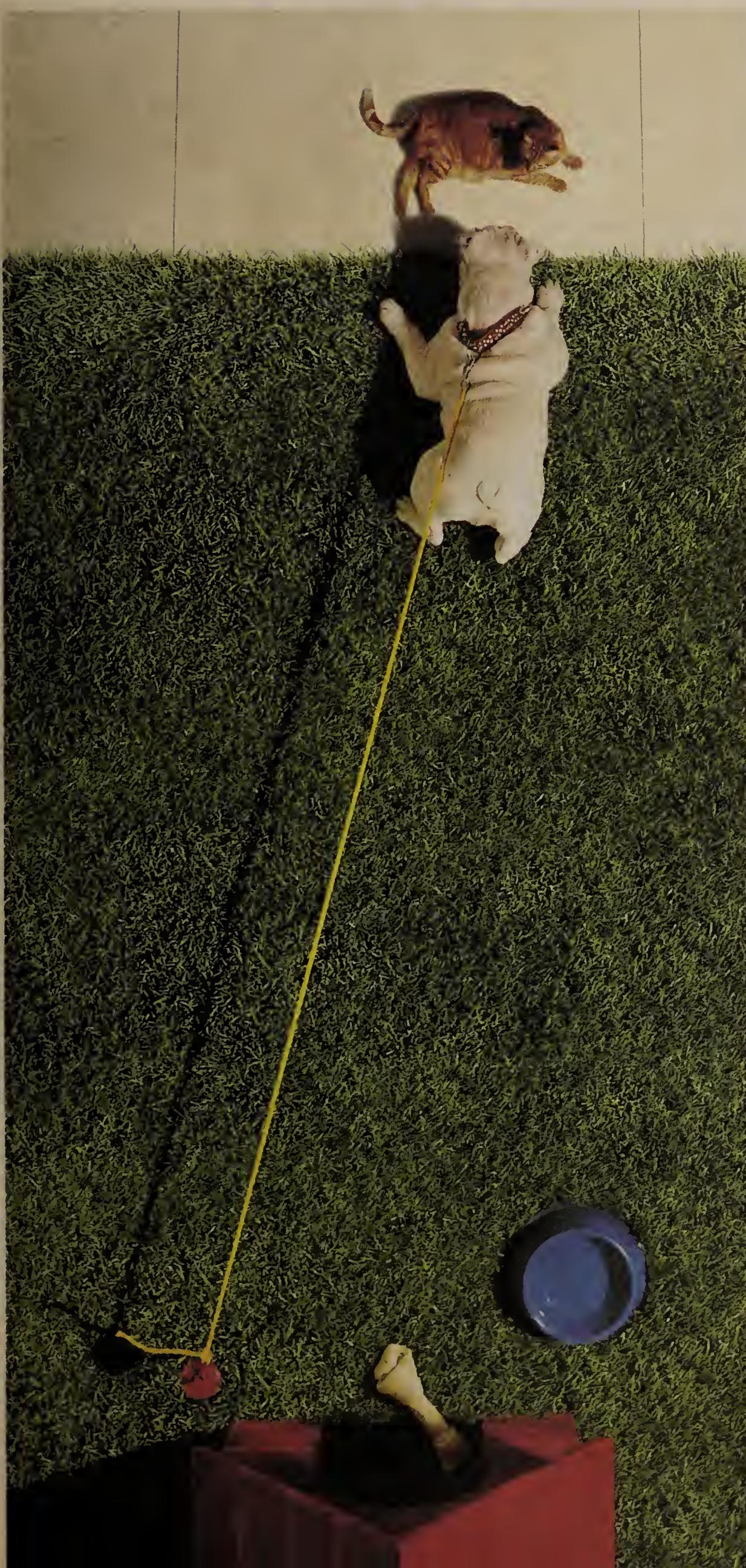
Fibermux will resell and support Wellfleet's stand-alone routers.



based on the Motorola, Inc. 68030 processor.

Fibermux will also resell and support Wellfleet's stand-alone routers.

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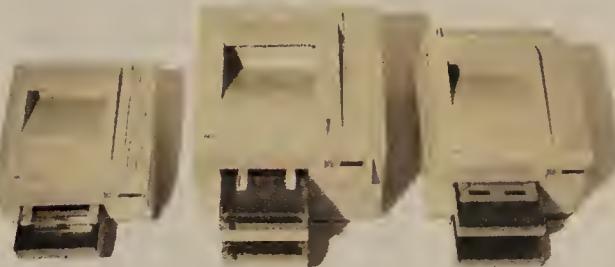


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Bytex unveils entry version of Series 7700 wiring hub

Six-slot chassis will offer smaller, remote users same features, functionality as firm's 7760 hub.

By Joanne Cummings
Staff Writer

WESTBOROUGH, Mass. — Bytex Corp. last week expanded its Series 7700 line of intelligent hubs with the introduction of a smaller version of its Model 7760 high-end hub.

Bytex's new 7730 is designed to provide the fault tolerance and performance of the 7760 hub to smaller or remote users that require fewer connections, according to Joe Skorupa, director of product planning and management at Bytex.

The 7730 has six slots that can accommodate three 12-port token-ring or Ethernet modules, one controller module and two

optional modules for integrated bridging/routing and network monitoring. Like the 17-slot 7760, it includes redundant power supplies and fans, and all components are completely hot-swappable.

The new hub offers the same connectivity features as the 7760. It supports token-ring networks running at either 4M or 16M bit/sec on unshielded or shielded twisted-pair wiring. It also contains an Ethernet backplane that supports as many as three independent 10Base-T Ethernet networks. Like the 7760, it also supports per-port switching among the token-ring modules, according to Skorupa.

All modules are interchangeable between the 7730 and 7760, and the company's Series 7700 Network Management Software supports both models.

"We found that people have small critical networks at remote sites, and although they may have smaller port requirements, they still need the same high-end features as the larger 7760," Skorupa said.

Bytex plans to support by year end both bridging and routing modules for both hubs under recent agreements with Cross-Comm Corp. and Wellfleet Communications, Inc.

Available now, the 7730 is priced at \$7,000, including a controller module and redundant power supplies. With a single power supply, it costs \$6,000. Pricing for the internetworking and net monitoring modules was unavailable at press time.

Pricing for the 7760 ranges from \$9,000 to \$10,500, depending on configuration. □

AT&T, Lockheed to deliver intelligent highway nets

Firms to offer toll collection, traffic info applications.

By Michael Cooney
Senior Editor

NEW YORK — AT&T and Lockheed Corp. last week announced that they will jointly deliver network-based services that could change the way the world travels by car.

The two companies will be marketing Intelligent Vehicle Highway Systems (IVHS) to federal, state, local and overseas governments. These systems — a market expected to be worth more than \$212 billion over the next 20 years — use radio, video, fiber and computers to form an intelligent network capable of providing automatic toll collection, on-board traffic reports and even directions.

AT&T will provide its Smartcard technology, while Lockheed will contribute software and systems integration support for IVHS.

Smartcard is a credit card-size device that could contain a variety of information such as the user's address, vehicle type and amount of credit available in a Smartcard account.

"The Smartcard is more than a piece of plastic," said Allan Sulkin, president of TEQConsult Group in Hackensack, N.J. "It is an electronic device capable of both transferring and receiving data. Its use in the highway system would make the operation more efficient, but [the card] could also be used in pay phones

and banking machines."

For toll collection applications, the Smartcard would fit into a radio-size transponder located in your car.

Receivers mounted above or in the road would "read" the card as the vehicle went by, note where it entered and exited the highway and charge the driver's card the appropriate toll. The card may have a prepaid amount available or operate as a credit card, in which case the driver would receive a monthly bill.

We should be making our roads smarter, not wider," Skarzynski said.



Commercial truck traffic can be located, classified, weighed and identified for taxation and toll collection while in motion. The Smartcard could also be used to pay parking fees, mass transit fares and limousine services.

A trial using the Lockheed software for the truck system is now under way in British Columbia, Delaware, Georgia, Louisiana, Maryland, New Jersey and Virginia also have Lockheed pilot

programs under way for automatic vehicle identification and toll collection.

Lockheed Information Management Services of Teaneck, N.J., a subsidiary of Calabasas, Calif.-based Lockheed, will provide the electronic toll collection software that integrates the toll data with the fiber-based AT&T IVHS networks.

The lines can connect to billing or toll collection centers located near the highway or some other central location, according to Pete Skarzynski, managing director of AT&T's IVHS communications systems. These data centers could be linked together to form a national traffic control or management network.

Ultimately, the information gathered by passing cars can be used to measure traffic flow. When the flow increases, warning signs by the side of the highway or even on video screens in cars can warn drivers to take alternate routes. This video technology could also deliver on-screen directions, hotel listings or other travel information services.

AT&T and Lockheed will be exploring video sensors that would turn on cameras when cars stop on the side of the road. This will aid in emergency vehicle response time, Skarzynski said.

"Our goal is to pull together the products and services to grow the intelligent roadways of the future," he said. "Pouring concrete is no longer the best answer to our traffic problems. We should be making our roads smarter, not wider."

Smartcards and transponders will be sold through AT&T. Pricing has not been set for IVHS services. □

FCC does about-face, opts to allow Tariff 12 changes

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — The Federal Communications Commission late last week reversed a decision it made in December and decided to allow users holding Tariff 12 contracts containing 800 services to add and drop network services.

For six months, the FCC held to a policy of rejecting "substantial" changes to such contracts, despite user complaints. But last Friday, the commission decided that policy was flawed because it created undue hardships for existing Tariff 12 customers.

Under the new policy put forth last week, AT&T customers that signed a Tariff 12 contract on or before April 16 will be allowed to modify their contracts as they have in the past.

"We're delighted the FCC listened to the concerns of over 100 business customers and is allowing these customers to make revisions to their networks and incorporate the latest technologies to meet their needs," said Claire Diamond, an AT&T spokeswoman.

But the decision also contains some bad news for AT&T and its users. The commission determined that customers wanting new Tariff 12 deals with 800 services must agree to change their existing 800 numbers to new ones. This policy will stay in effect until 800 number portability is achieved, the FCC said.

"This is not the perfect solution," Diamond said. Last week's FCC decision on "old" vs. "new"

800 numbers also applies to other bundled service offerings from AT&T, including Tariff 16. Bundling services with new 800 numbers will not create a significant risk of anticompetitive effects, the FCC concluded in the new ruling, reversing its previous decision.

The FCC realized its earlier decision prohibiting changes to existing Tariff 12 deals was "flawed" because it put Tariff 12 users under duress, said Andre Lachance, attorney at the Common Carrier Bureau's FCC Policy Division. "Customers are going crazy," he added.

The ban on changes to Tariff 12 revisions with 800 service arose from an FCC ruling last August that concluded AT&T is dominant in the 800 services market.

Last December, the FCC decided it would no longer allow changes to Tariff 12 contracts that included 800 services — virtually all of them do — until 800 portability was achieved. At AT&T's request, the FCC later agreed to review that decision. Last week's ruling is the result of that review.

The text of last week's FCC order had not been released at press time.

Although it claimed not to know what course of action the FCC would take, AT&T last Wednesday filed nine customer-desired revisions for some Tariff 12 options.

AT&T anticipates a typical 14-day FCC approval time for the revisions to take effect. □

Int'l net to let Army, NATO allies share weapons data

By Ellen Messmer
Washington Correspondent

ARLINGTON, Va. — The U.S. Army last week announced it will soon set up the first international net to share Computer-Aided Acquisition and Logistics Support (CALS) data with NATO partners.

The CALS network, to be operational in December, will allow NATO offices and contractors in France, Germany, Italy and the U.K. to access and exchange weapon systems data stored on mainframes at the Huntsville, Ala., Missile Command (MICOM) in CALS format, the military standard for graphics and text.

Under the Department of Defense CALS requirement, defense contractors involved in large weapons systems for the Air

Force, Army and Navy must now submit engineering drawings and text information in digital form — usually computer tapes or CDROM — instead of paper. Although plans are under way to connect mainframe databases at defense and industry sites by 1998 to share CALS data electronically, current CALS computer tapes are usually hand-delivered by contractors.

At last week's CALS & Electronic Data Interchange Conference here, officials in the Army CALS program announced the first international links planned for CALS, which will allow the U.S. and its NATO partners in the Multiple Launch Rocket System (MLRS) program to access data (continued on page 54)



Until now, waiting for network printing has required the same amount of patience.

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Chicago flood sends users to disaster recovery sites

By Wayne Eckerson
and Bob Wallace
Network World Staff

CHICAGO — The flood here last week of an underground tunnel complex linking most major downtown buildings, and the resulting power shutdown, failed to knock out telephone service but sent network managers running for higher ground.

The failure of a tunnel restraining wall abutting the Chicago River flooded the basements of numerous buildings, halted trading on all three exchanges in the city and forced most firms to move net operations to nearby disaster recovery facilities.

The Illinois Bell Telephone Co. and two main bypass carriers utilize the tunnels — once used to deliver coal to downtown buildings — as rights of way for wires. While much of the wire and fiber cabling was under water, the water level did not rise enough to threaten net electronics.

Nonetheless, users were forced to evacuate their buildings because Commonwealth Edison

Co. shut down power to the district as a precaution against that occurrence.

Disaster recovery specialists Comdisco Disaster Recovery Services, Inc. and SunGard Recovery Services, Inc. reported that the number of downtown companies needing their services resulted in the heaviest use of their respective backup facilities ever.

At the peak of the event, 18 companies declared the situation a disaster and moved to Comdisco, while 19 others put Comdisco on alert, meaning they were close to leaving their buildings.

A SunGard spokeswoman reported that seven corporations declared the situation a disaster, but only six shifted operations to the company's recovery centers. Six others put SunGard on alert.

Several more users were forced to move network operations to different network sites.

The flood forced Arthur Andersen & Company, S.C. to evacuate the North State Street offices that house the firm's network control center and user systems

support group.

The control center is used to manage the company's worldwide packet network, which links more than 100 offices in dozens of countries. The flood knocked out power to one packet switch and forced the firm to move four T-1 lines, two 56K bit/sec lines and 14 analog lines to the data center at its headquarters two blocks away, said Wayne Davidson, network director at the firm.

"We don't yet have our full alarm and monitoring capabilities, but we have enough to get by," he said.

The flood took the Chicago Board of Trade out of commission until Wednesday, when Commonwealth Edison restored power through a feed from a second power grid, according to Roger Martinez, vice-president of telecommunications at the futures and commodities exchange.

Martinez said flood waters came within 4 feet of entering the basement level that contained the exchange's main distribution frame for phone lines. The exchange considered moving its trading floor to an alternate site that would have required rerouting of voice and data lines, but that action proved unnecessary once power was restored. □

FDDI installed with a twist

continued from page 1

third less to run than fiber, Fink said fiber is the appropriate media for many applications, such as noisy environments.

But in order to leverage the vast amount of unshielded twisted-pair cable installed at Lawrence Berkeley, Fink's group two months ago began testing FDDI-over-unshielded twisted pair as a way to increase bandwidth to the desktop without deploying fiber.

Test results have been excellent so far. The net has supported data speeds of 25M to 30M bit/sec, compared with 4M to 8M bit/sec over Ethernet, and it has proven reliable for supporting production applications. Fink said the speeds achieved over unshielded twisted pair are consistent with fiber-based FDDI.

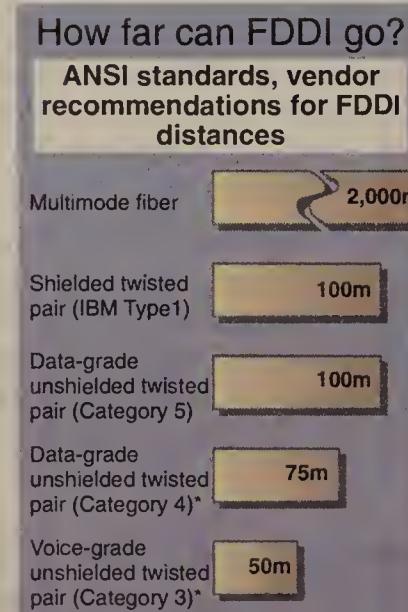
"Nobody comes close to 100M bit/sec," he said.

Lawrence Berkeley has also experienced no data degradation or emission problems.

The net is anchored by an eight-port Crescendo 1000 FDDI wiring hub from Crescendo Communications, Inc., a Sunnyvale, Calif., start-up. The net, which is being used for scientific visualization and imaging applications by a research group here, supports eight Sun Microsystems, Inc. SPARCstations with SBUS FDDI adapters from Crescendo.

Currently, the FDDI net stands alone, although the SPARCstations are attached to a lab Ethernet as well (see graphic, page 1). Fink plans to link the FDDI net and the Ethernet within the next month via a Cisco Systems, Inc. AGS+ router and also plans to add more Crescendo hubs.

Fink said that three years ago,



SOURCE: CRESCEDO COMMUNICATIONS, INC., SUNNYVALE, CALIF.
GRAPHIC BY SUSAN J. CHAMPEY

the laboratory installed voice-grade unshielded twisted-pair wire across 4,000 offices to support Integrated Services Digital Network applications, as well as 10Base-T and Apple Computer, Inc. LocalTalk nets.

Co. preps new router wares

continued from page 1

META Group, a consultancy in Reston, Va. "In addition, they'll be triggering SNMP commands rather than proprietary commands to change the configuration of their routers."

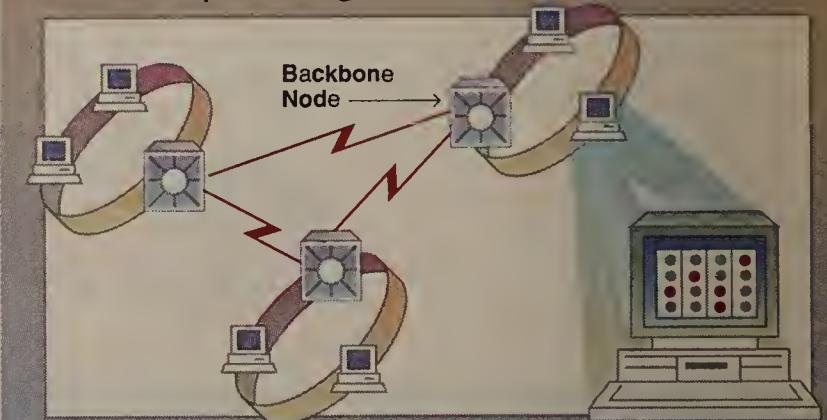
Site Manager will be available first for Wellfleet's new high-end 1G bit/sec Backbone Node bridge/router, which is currently undergoing beta-testing and is scheduled to begin shipping in

er, as well as systems based on the Open Software Foundation, Inc.'s Distributed Management Environment (DME).

Karen Barton, Wellfleet's director of product marketing, said the vendor chose the SNMP task over the Common Management Information Protocol (CMIP) — which has more sophisticated control capabilities — because CMIP-based central management systems do not currently exist.

"The industry is clearly adopting SNMP in a strong way, and our aim is to leverage that," she said.

Expanding the role of SNMP



Wellfleet Communications, Inc.'s Site Manager will let users at DOS, Unix or Microsoft Corp. Windows workstations monitor and control routers via SNMP's GET and SET commands. Using Site Manager, an administrator can call up a graphical image of a Wellfleet Backbone Node, reconfigure the router and download new software.

GRAPHIC BY SUSAN J. CHAMPEY

June. By this summer, it will also support the large installed base of Wellfleet's Feeder, Link and Concentrator Node bridge/routers.

Analysts said other vendors will eventually need to match Wellfleet's move to stay competitive in terms of open management. Vendors such as Cisco Systems, Inc. and Vitalink Communications, Inc. would not confirm if they are planning similar SNMP features, while Proteon, Inc. and 3Com Corp. said they will wait until an authentication standard for SNMP is finalized before implementing SNMP control and configuration capabilities.

Currently, internetworking devices, such as bridges and routers, are equipped with SNMP agents that communicate with an SNMP manager using only the GET command. This enables the agent to respond to queries from a management station but does not support complex commands for controlling devices, such as making configuration changes.

Using the new software, a network administrator can monitor the Wellfleet bridge/router to determine if it is having problems and then issue commands to control damage and perform repairs. The SET functionality will also let managers change default values and routing tables, or set filters and performance parameters.

Providing such capabilities via SNMP allows the application to be ported to any third-party SNMP management platform, such as Hewlett-Packard Co.'s OpenView and SunConnect's SunNet Manager.

Pricing for the new software has not been set, but it will cost under \$5,000, Barton said.

Wellfleet said it will also unveil next month a memory card with erasable programmable read-only memory (EPROM) circuits, making it faster to load bridge/router software.

The industry is clearly adopting SNMP in a strong way, and our aim is to leverage that," Barton said.



The card is expected to reduce the time needed to load new software from an average of four minutes to less than 20 seconds by making it possible to boot the device from EPROM chips instead of via a floppy disk or by replacing PROM chips.

The Flash EPROM capability will also enable users to perform remote software distribution via Wellfleet's existing Trivial File Transfer Protocol. Files can be loaded from a management station to the bridge/router and stored on Flash EPROMs. Previously, remote software distribution was loaded via a floppy disk.

Pricing for the Flash EPROM was not available. □





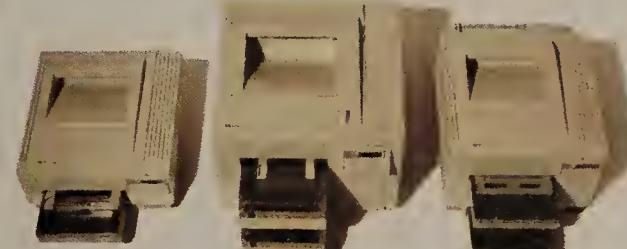


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"Is the LAN industry cheating its customers?"

Ralph Unger mann
President, CEO

You bet it is. In these days of "open" systems, most LAN vendors are still leading customers down dead-end streets. While everyone claims to be "open," most are very "closed." Take routers, for example—carefully protected, incompatible routing algorithms tightly lock users to one vendor. Or network management—where are the industry-standard APIs and truly "open" databases?  Worse still, users are constantly forced to junk their investments. For example, users had to discard their wiring concentrators to get effective network management and broad connectivity from intelligent hubs. Now they are facing the same dilemma in migrating to enterprise hubs that support integrated routing and multimedia. The true cost of obsolescence is astonishingly high.  Enough is enough. LAN users deserve products with smooth migration paths that protect their investment and provide for the future. The LAN industry owes its customers truly open systems. Now. If you want to hear more about our views on these issues, call 1-800-777-4LAN.

 **Ungermann-Bass**

UDS brings more to the table in the V.32 *bis* modem game



	Max Thruput	Rack-Mountable	V.25 <i>bis</i> Autodial	Dial Backup	Remote Config.	Call Security	LCD Display
UDS V.3229	57.6K	●	●	●	●	●	●
Digicom 9624E+	38.4K	●	●	●			●
Hayes Ultra 144	38.4K		●				
Microcom QX/4232 <i>bis</i>	38.4K	●				●	
U.S. Robotics Courier V.32 <i>bis</i>	38.4K	●					
Telebit T3000	57.6K	●			●	●	

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Modems that comply with the CCITT V.32 *bis* recommendation (and there are lots of them) share some common characteristics: 14.4 kbps basic rate, with compressible automatic fallback speeds; V.42 *bis* and MNP® level 5 data compression; sync or async full-duplex operation over two- or four-wire circuits and Hayes "AT" auto-dialing.

As these similarities drive value-conscious modem buyers to look beyond the common features, the search for added performance advantages brings them to the UDS V.3229.

In addition to the "standards," UDS offers a suite of features—automatic dial back-up, remote configuration capability, call security etc.—that is simply not available in competitive models.

If you're a modem buyer who understands that there's more to value than just price, UDS will happily rig the V.32 *bis* game in your favor.

For detailed specifications and a winning price/performance quote, contact UDS at

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Circle Reader Service #113

UDS
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DATA NET ARCHITECTURES

NETWORK ARCHITECTURES, DATA NETWORK EQUIPMENT, STANDARDS AND ENTERPRISE NETWORK MANAGEMENT

Worth Noting

"For [information systems] managers, hell is where everything connects to everything but nothing interoperates."

Todd Dages
Director of data communications research and consulting
The Yankee Group
Boston

Data Packets

Ascom Timeplex, Inc. last week said it added frame relay interfaces to its Timepac X.25 packet switches.

The frame relay interface is said to reduce the number of interface ports on the switch and provide roughly 10 times the throughput of X.25.

The interface will be available on Timepac switches in July. The switches range in price from \$5,000 to \$30,000.

Eicon Technology Corp. of Montreal has unveiled an IBM 3270 terminal emulator that supports a gateway developed by Digital Communications Associates, Inc. and Microsoft Corp.

Access for Windows Version 3.12 now enables Microsoft Windows-based personal computers on a local-area network to emulate 3270 terminals and access Systems Network Architecture networks through the DCA/Microsoft Communications Server gateway. It can now also be downloaded to a client workstation from a LAN file server and supports file transfers between LAN-attached workstations and IBM DISOSS office system environments.

Access for Windows 3.12 is priced at \$395 per user and is available now. A 10-user pack costs \$3,000, while a 25-user pack is tagged at \$5,000. □

AT&T looks to build video market with codec chipset

Standards-based unit may reduce costs for users.

By Jim Duffy
Senior Editor

BERKELEY HEIGHTS, N.J. — AT&T believes its new coder/decoder chipset will breathe life into a videoconferencing market that analysts say is in need of a jump start.

AT&T Microelectronics has unveiled the AVP-1000, a three-chip set the company said implements all the necessary standards for full-motion video, videoconferencing and stored-interactive video, where images are stored in memory.

The chipset is intended to drive down the costs of video codec equipment and stimulate development of nondedicated, interoperable codecs that are optional add-ons to other devices.

"Our goal is to turn box-level codecs into a handful of chips," said Arnold Englander, manager of market development for multimedia at AT&T Microelectronics. "We want to make them features of other things, such as PCs."

The chipset supports the Motion Picture Experts Group, Joint Photographic Experts Group and Px64 standards for full-motion video and audio, still-image compression and videoconferencing, respectively. It includes an encoder, decoder and system con-

trol chip, and provides full-motion video compression of as many as 30 frames per second.

Englander said AT&T's effort will reduce the cost of manufacturing video codecs to one-tenth of its current level. It will also foster development of codecs that cost a fraction of their current

"Our goal is to turn box-level codecs into a handful of chips," Englander said.



price, which ranges from about \$20,000 to \$50,000, according to the company.

"The market is going to grow very quickly now," Englander said. The desktop videoconferencing market in the U.S. was \$9 million in 1991, according to The Conference Board in New York. Englander predicts it will reach \$19 million this year and is expected to hit \$110 million in 1995.

Though analysts generally

(continued on page 14)

Frame Relay, Telenetics ink OEM, marketing deal

By Jim Duffy
Senior Editor

COSTA MESA, Calif. — Frame Relay Technologies, Inc. here and Telenetics Corp. of Fullerton, Calif., have disclosed an OEM and joint marketing agreement for frame relay net access products.

Under the agreement, Telenetics will private-label Frame Relay Technologies' FrameMux feeder multiplexers and nodal switches. Frame Relay Technologies will also assist Telenetics in adding frame relay to Telenetics' line of modems, according to officials from both companies.

The products will be targeted at small to midsize companies that currently lease several cir-

cuits for interconnecting local-area net bridges and routers.

FrameMux devices provide bandwidth on demand, meaning the muxes and switches can signal the carrier network to provide more bandwidth during peak traffic periods. This obviates paying for unused bandwidth.

Telenetics' dial-up modems will have frame relay firmware, enabling them to dial up frame relay service up to 14.4K bit/sec, said Mike Armani, Telenetics' chief executive officer. That capability will be geared to user sites that cannot justify the cost of a 56K bit/sec leased line.

A frame relay modem would

(continued on page 14)

U.S. controller market hits hard times

Shipments and installed base of IBM and compatible cluster controllers are dwindling.

Vendor	1990		1991	
	Shipments	Installed base	Shipments	Installed base
IBM	50,000	256,840	22,500	230,810
Memorex Telex Corp.	12,500	52,820	11,500	55,580
IDEA	1,500	11,220	2,100	11,160
Harris Adacom Corp.	2,040	10,250	1,500	10,020
Lee Data Corp.	350	5,280	550	4,640
Apertus Technologies, Inc.	330	330	490	810
McDATA Corp.	560	660	1,640	2,270
	• Direct		3,340	35,200
	• OEM			2,060
Total	70,620	372,600	42,340	346,850

GRAPHIC BY SUSAN J. CHAMPEY

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

Controller vendors fall victim to LANs

As dumb terminals give way to PCs, controllers need new LAN-oriented connectivity options.

By Michael Cooney
Senior Editor

The rapidly growing desire to connect PCs to LANs is forcing cluster controller vendors to adopt better LAN connectivity options or risk losing millions of dollars in product sales.

The declining dumb terminal market and the advent of more efficient and faster personal computer gateways to mainframes are eliminating the need for specialized Systems Network Architecture controllers. According to an upcoming report from International Data Corp. in Framingham, Mass., SNA controller shipments dropped 40% last year (see graphic, this page).

But controller vendors are attempting to fight back. Two of their primary challenges are to make SNA backbones more flexible and to provide host gateways that do not require users to throw away existing applications or equipment, said Steve Cartwright, McDATA Corp. group product manager.

McDATA provides flexibility by supporting Ethernet on its LinkMaster 7100 series of controllers as well as its 6100 line, which allows token-ring and Ethernet local-area networks to attach to an IBM mainframe. This support allows devices attached to Digital Equipment Corp. devices to gain access to IBM mainframe resources.

"We see users wanting to get everything attached to a routed

or bridged communications backbone and let the backbone carry all types of protocols," Cartwright said.

In order for traditional controller-oriented SNA users to take advantage of bridged or routed backbones, they will have to wait for Advanced Peer-to-Peer Networking (APPN) or look to third-party bridge or router vendors to handle their SNA data.

APPN support is only a planned feature for some IBM 3174-compatible vendors. Meanwhile, many bridge and router vendors are offering Synchronous Data Link Control encapsulation, which lets users connect controllers directly to their routers and bridges and ship SNA data over a multiprotocol backbone.

Analysts said 3174-compatible vendors must continue to integrate LAN technology into their controllers in order to remain viable. For some, that means increased support for Ethernet and X.25; for others, it means entering the 3172 controller market.

The 3172 is a mainframe channel-connected controller for Ethernet, token-ring and Fiber Distributed Data Interface LANs. McDATA's 6100 was the first 3172-compatible box to hit the market, and others are expected in the near future ("NCR developing 3172-like gateway to challenge IBM," NW, April 6).

Controller vendors also have to change users' opinions of their

(continued on page 14)

AT&T looks to build video market

continued from page 13

agree that AT&T's chipset will play a role in expanding the videoconferencing market in terms of units shipped and revenue, they are divided on how dramatic that impact will be.

"It's still hard to see what it's going to do [to the market]," said Maury Klapfish of Venture Development Corp. "Its price is not particularly cheap."

The AVP-1000 is priced at \$376 per chipset in quantity purchases.

Will Strauss of Forward Concepts, a networking consultancy based in Tempe, Ariz., disagreed with Klapfish.

"Most of the videoconferencing market is made up of large, expensive products," he said. "Now we have something that will truly broaden the market."

The chipset is scheduled for limited availability in the fourth quarter, while production quantities will be available in mid-1993, according to AT&T. □

Firms ink OEM, marketing deal

continued from page 13

benefit remote sites that need an inexpensive, low-speed dial-up connection to resources at its headquarters, said Michael Howard, president of Infonetics Research, Inc., a San Jose, Calif., consultancy.

According to Armani, Telenetics' modems have X.25 interfaces for linking personal computers and terminals to packet-switched networks. Telenetics is looking to Frame Relay Technologies to augment

the X.25 capability with frame relay.

Telenetics is expected to unveil its FrameMux-based products next month. The companies will then cooperatively sell the products to new and existing accounts, which will be a boon to Frame Relay Technologies, officials from both firms said.

"They will be our marketing organization to sell our products," said Abdul Aljaff, vice-president of engineering at Frame Relay Technologies.

Armani added, "Frame Relay Technologies is primarily a research and development company, not a marketing company."

Terms of the arrangement and pricing for the Telenetics products were not disclosed. Prices for Frame Relay Technologies' FrameMux line, however, range from \$8,000 to \$25,000, Aljaff said. □

Controller vendors fall victim to LANs

continued from page 13

products. "We need to change the perception that controllers are only good for 3270 coaxial connections," said Bryan Jones, product manager for Memorex Telex Corp.'s controller line. "Traditional 3270 users need to know they can be successfully bridged to the more intelligent [multiprotocol LAN] networks, too."

Lucinda Santisario, an analyst with IDC, said that is not happening. "Even though they could, customers just aren't implementing 3174s as they move to LAN environments," she said. "Plug-compatible makers didn't do as poorly as IBM, but their success will be short term."

Others agreed with IDC's assessment of the controller market, adding that IBM may suffer most as the SNA controller market shakes out because third-party 3174 vendors have been quick to improve the price/performance and LAN support of their wares.

"We use McDATA controllers because we felt that IBM's technology was so far behind what we needed to do," said James Kelly, an engineering manager with Progenet Corp. in Uniondale, N.Y. "McDATA had better windowing capabilities, and in order to accommodate non-SNA traffic with the IBM solution, we would've had to buy two boxes. With McDATA, we only needed one."

IBM, however, dismissed IDC's survey findings and the doomsayers of 3174. Executives refused to give exact numbers but said their own findings showed losses on 3174 were not as dramatic as IDC's.

"Overall industry shipments were down, and we recognize that trend. But we think one of the main reasons for that is the newer controllers contain more device ports," said George McGregor, manager of IBM's establishment subsystems. More device ports on larger controllers means users need fewer boxes.

Santisario said the increased number of device ports were accounted for in her survey, and she noted that shipments were down on all IBM models. "That was one of the most surprising findings," she said.

For those who say the 3174's days are numbered, McGregor pointed out the large role the box will play in IBM's APPN strategy and its current position in the company's software distribution strategy. □



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LAN HARDWARE, NETWORK OPERATING SYSTEMS AND LAN MANAGEMENT

Worth Noting

"We're here to talk about why the directory services in NetWare 3.2 are better than StreetTalk's . . . Not!"

Comment made by look-alikes of Wayne and Garth, from *Saturday Night Live's "Wayne's World,"* at last week's Association of Banyan Users International meeting in Chicago

Netnotes

Microdyne Corp. and **Novell, Inc.** last week jointly announced what the companies claim are the first pre-configured network communications servers.

The first product, called **NetWare Access Server** by Microdyne, is basically Novell's **NetWare Access Server** software ported to a 33-MHz Intel Corp. 80386 machine pre-configured with the necessary adapters and modems.

The product, a stand-alone machine, is designed to let remote NetWare customers dial in to the NetWare local-area network to retrieve messages or launch applications.

The second product, called **NetWare Asynchronous Communications Server** by Microdyne, is Novell's **NetWare Asynchronous Communications Software** ported to a pre-configured 25-MHz Intel 386SX device.

Also a stand-alone machine, the offering provides dial-out capabilities, letting users share modems and telephone lines or access asynchronous host computer systems and public computer services.

Both products are available now through Novell resellers in four- and eight-port versions.

Pricing for the servers ranges between \$8,995 and \$14,695, depending on configuration. □

USL revises its destiny with Unix for commercial markets

Company hopes to unite proprietary OS versions.

By Margie Wylie
Senior Editor

CHICAGO — Users hear a lot today about "rightsizing" networks with Unix-like operating systems, such as IBM's OS/2, but Unix Systems Laboratories, Inc. (USL) believes there is nothing like the real McCoy. That's why the company has announced **Destiny**, a revision of its Unix operating system designed to push Unix into commercial mass markets.

Announced at the recent Comdex/Spring show here, **Destiny** is based on USL's System 5 SVR4.1 Enhanced Security operating system and will offer several advantages over other types of Unix currently available. USL hopes that those advantages, combined with market pressures, will compel other vendors to drop their proprietary flavors of Unix and port **Destiny** to their hardware.

Compatible Unix implementations would let developers create Unix applications that work with computers from different vendors using a range of processor types. USL was charged with that

task when it spun off from its parent, AT&T, a year ago, but the company has been unable to persuade vendors to universally adopt its previous releases.

This time, however, USL is hedging its bets. Although the firm will still license its portable code freely, it will also port the operating system to all the major hardware types through Univel, a joint venture it formed with Novell, Inc. last year.

Univel's first products, tentatively dubbed **UnixWare** and expected by year end, will run on Intel Corp. platforms and offer Novell NetWare services that tie closely to the Unix environment ("Univel developing user-friendly Unix," *NW*, April 13). Subsequent releases will run on Hewlett-Packard Co., IBM and Sun Microsystems, Inc. workstations, among others.

This will enable USL to back up its strategy by licensing **Destiny** code to interested hardware makers and selling compiled, ready-to-run versions of the operating

(continued on page 17)

Sun seeks to connect Unix, other PC operating systems

By Margie Wylie
Senior Editor

BILLERICA, Mass. — With one business unit busily porting its brand of Unix to Intel Corp. platforms, Sun Microsystems, Inc. last week set up another unit charged with forging links between Unix and other PC operating systems.

SunSelect promptly rolled out **PC-NFS 4.0**, a new version of Sun's popular remote file server for personal computers. The company also unveiled its **SunPC** line of DOS and Microsoft Corp. Windows emulators.

Now shipping for \$415 per user, **PC-NFS 4.0** features full Windows 3.1 and DOS 5.0 support. Under Windows 3.1, **PC-NFS** utilities appear as icons on the desktop. Users can employ the same conventions for such tasks as logging on and printing as they do with Novell, Inc. NetWare or any other network file and print

service, according to SunSelect officials.

Version 4.0 also offers integrated support for token ring, a pop-up messaging service, faster VT-100 terminal emulation and improved PC print services. Upgrades cost \$89.

SunSelect last week also announced its **SunPC** line. Due this week, the products will let users run DOS and Windows applications on Sun SPARCstations.

The \$695 **SunPC** Software, based on Insignia Solutions, Inc.'s **SoftPC 3.0**, will replace Sun's DOS Windows offering. **SoftPC** emulates an Intel 80286 environment with video graphics adapter (VGA)-emulation, allowing users to run basic DOS applications on SPARCstations.

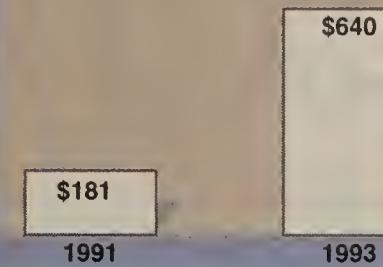
Unlike previous solutions, **SunPC** also integrates the PC environment with Sun's Unix-based file and print services, allowing

(continued on page 17)

Worldwide FDDI expenditure forecast

(In millions)

Although the most important FDDI market segment has been backbones, the strongest growth through 1995 is expected to come from FDDI workstation connections.



GRAPHIC BY SUSAN J. CHAMPEY

SOURCE: INFONETICS RESEARCH, INC., SAN JOSE, CALIF.

FDDI is curing gov't users' bandwidth ills

From Navy docks to halls of Congress, FDDI meets ever-increasing capacity requirements.

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — Both the civilian and defense segments of the federal government are implementing 100M bit/sec Fiber Distributed Data Interface networks in growing numbers to meet their ever-expanding bandwidth requirements.

In the U.S. Navy, FDDI technology is being put to work in rugged environments — including shipyards, warships and submarines — while on the civilian side, new FDDI networks are planned for Congress and the National Institutes of Health (NIH).

Cmdr. David Brewer, project manager of Naval Station Charleston's FDDI-based Industrial Area Network, said work was completed last November on an FDDI network prototype to integrate the islands of computer automation scattered across the South Carolina shipyard's 250 acres. The Charleston FDDI net now supports Banyan Systems, Inc. VINES, the Transmission Control Protocol/Internet Protocol, Novell, Inc. Internetwork Packet Exchange (IPX), Apple Computer, Inc. AppleTalk and Digital Equipment Corp. DECnet protocols, among others.

Brewer said the FDDI net has been critical in ensuring that work orders and materiel requisitions reach shipyard-based maintenance personnel in a timely manner, which was hard to achieve with the previous paper-based system.

"Important to us was FDDI to the pier," Brewer said. That configuration will enable the Charleston shipyard to connect its FDDI net to FDDI local-area networks that are planned for submarines and ships.

The Charleston FDDI LAN prototype passed inspection last winter, and the Navy is now installing FDDI backbones at other shipyards. Brewer said the Naval Sea System Command is testing FDDI nets on submarines and destroyers, such as the U.S.S. Yellowstone, which has a prototype FDDI LAN connecting computers storing work orders, ship engineering drawings and parts information.

The Charleston shipyard FDDI LAN was installed by Navy staff working in conjunction with the primary contractor, Comprehensive Technologies, Inc., with Martin Marietta Information Systems Group of Chantilly, Va., supplying the basic network design.

Brewer offered advice to users who may be interested in implementing FDDI. "Insist on interoperability with what you've got installed," he said. "Trial the equipment. Get the vendor on site and try some things out."

Brewer noted that recent advances in intelligent hubs would influence the Charleston FDDI design if it were done today.

"Intelligent hubs didn't exist two years ago when we started," he said. "Today, we'd use fewer routers and more FDDI concentrators."

(continued on page 17)

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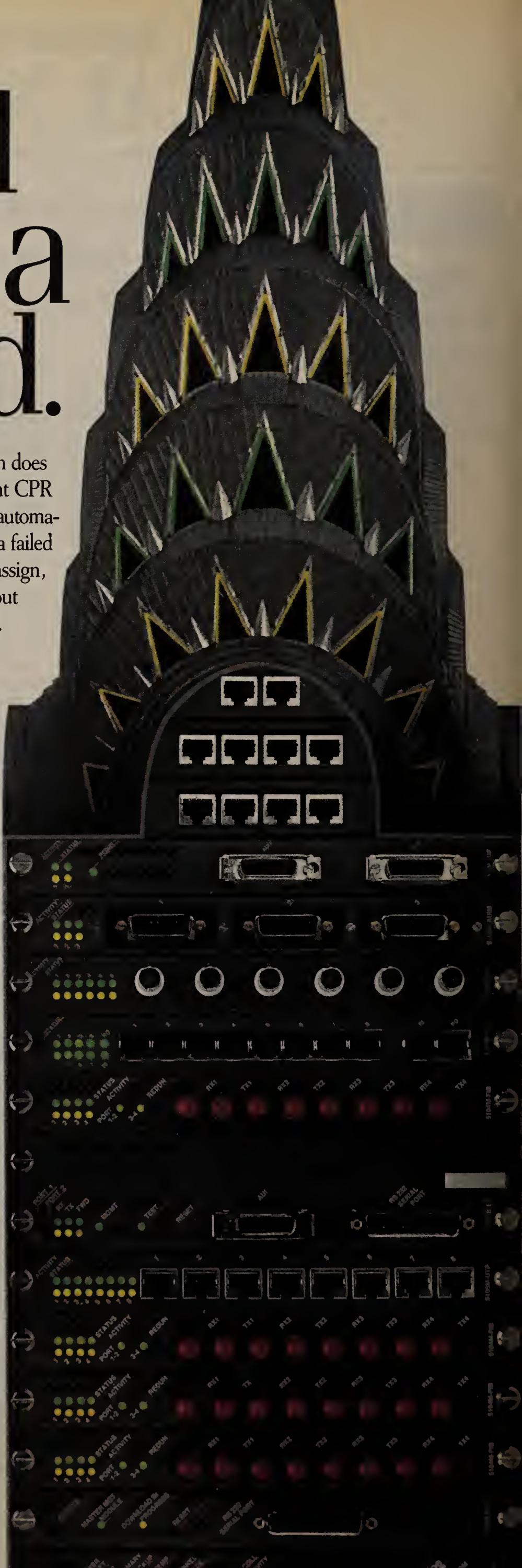


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- 01 Manufacturers (other than computer/communications)
- 02 Finance/Banking
- 03 Insurance
- 04 Real Estate
- 05 Healthcare Services
- 06 Legal
- 07 Hospitality
- 08 Retail/Wholesale Trade
- 09 Transportation
- 10 Utilities
- 11 Education
- 12 Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry)
- 13 Government State/Local
- 14 Government Federal
- 15 Military
- 16 Aerospace
- 17 Consultants (Independent)
- 18 Carriers
- 19 Interconnects
- 20 Manufacturers (Computer/Communications)
- 21 VAR/VAD/Systems House
- 22 Distributor, Computer Related
- 23 Distributor, Communications Related
- 24 Other

2 What is your job function? (check one only)

NETWORKING MANAGEMENT

1. Networking Mgmt
3. Datacom/Telecom Mgmt
2. LAN Mgmt
4. Engineering Mgmt

MIS MANAGEMENT

5. MIS, IS, IT, Mgmt
6. Engineering Mgmt

CORPORATE MANAGEMENT

7. Corporate Mgmt (CIO, CEO, Pres, VP, Dir, Mgr, Financial Mgmt)

8. Consultant (Independent)

9. Other

3 What is the total number of sites for which you have purchase influence? (check one only)

1. 100+
3. 20 - 49
5. 2 - 9
2. 50 - 99
4. 10 - 19
6. 1

4 Check all that apply in columns A and B:

A: I am involved in the purchase of the following products/services.

B: I plan to purchase the following products/services in the next 12 months

Plan to
Involved Purchase

A	B	LOCAL-AREA NETWORKS
01. <input type="checkbox"/>	<input type="checkbox"/>	Local-Area Networks
02. <input type="checkbox"/>	<input type="checkbox"/>	LAN Servers
03. <input type="checkbox"/>	<input type="checkbox"/>	LAN Operating Systems Software
04. <input type="checkbox"/>	<input type="checkbox"/>	Superservers
05. <input type="checkbox"/>	<input type="checkbox"/>	Data Base Servers (Oracle, Sybase, etc)
06. <input type="checkbox"/>	<input type="checkbox"/>	Terminal Servers
07. <input type="checkbox"/>	<input type="checkbox"/>	LAN Services
08. <input type="checkbox"/>	<input type="checkbox"/>	LAN Storage Devices (Optical, Tape, Disk, Etc. including Backup Systems)
09. <input type="checkbox"/>	<input type="checkbox"/>	Network Test Equipment
10. <input type="checkbox"/>	<input type="checkbox"/>	Hubs
11. <input type="checkbox"/>	<input type="checkbox"/>	Cables, Connectors, Baluns
12. <input type="checkbox"/>	<input type="checkbox"/>	UPS
13. <input type="checkbox"/>	<input type="checkbox"/>	Network Adapter Boards
14. <input type="checkbox"/>	<input type="checkbox"/>	Central Office LANs
15. <input type="checkbox"/>	<input type="checkbox"/>	Wireless LANs
16. <input type="checkbox"/>	<input type="checkbox"/>	SNMP Network Management
A	B	INTERNETWORKING
17. <input type="checkbox"/>	<input type="checkbox"/>	Bridges
18. <input type="checkbox"/>	<input type="checkbox"/>	Routers
19. <input type="checkbox"/>	<input type="checkbox"/>	Gateways
20. <input type="checkbox"/>	<input type="checkbox"/>	Bridge/Router
21. <input type="checkbox"/>	<input type="checkbox"/>	Hubs
22. <input type="checkbox"/>	<input type="checkbox"/>	Intelligent Hubs
23. <input type="checkbox"/>	<input type="checkbox"/>	Communications Servers
A	B	COMPUTERS/PERIPHERALS
24. <input type="checkbox"/>	<input type="checkbox"/>	Micros/PCs

5 What are your primary responsibilities? (check all that apply)

1. LANs
3. WANs
2. Internetworking

6 What is the scope of your involvement in purchase decisions for Network products & services? (check one only)

1. Enterprisewide (Organization/Subsidiary/Division)
2. Multienterprise (Consultants)
3. Departmentwide

7 Is your network: (check all that apply)

LOCAL AREA NETWORKS

1. Local (within building)
2. Local (in a campus environment)

WIDE AREA NETWORKS

3. International
4. National
5. Regional (several states)
6. Metropolitan

8 Which of the following network architectures/protocols are used? (check all that apply)

01. SNA
08. X.25
02. DECNET
09. NOVELL IPX/SPX
03. OSI
10. APPC/APPN/LU 6.2
04. GOSIP
11. NETBIOS
05. MAP/TOP
12. DEC LAT
06. TCP/IP
13. APPLETALK
07. DCA (Unisys)
14. OTHER

9 What is your LAN Operating System? (check all that apply)

01. LOCALTALK (APPLETALK)
02. BANYAN (VINES)
03. DCA (IRMLAN)
04. IBM (LAN SERVER)
05. IBM (PC LAN PROGRAM)
06. MICROSOFT (LAN MANAGER)
07. UNGERMANN-BASS
08. NOVELL (NETWARE, 2 X, 3.X)
09. PROTEL (PRONET)
10. SITKA (TOPS)
11. 3COM (3+, 3+ OPEN)
12. Other

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25. <input type="checkbox"/>	<input type="checkbox"/> Minis	58. <input type="checkbox"/>	Protocol Converters
26. <input type="checkbox"/>	<input type="checkbox"/> Mainframes	59. <input type="checkbox"/>	Network Management Systems
27. <input type="checkbox"/>	<input type="checkbox"/> Laptops	60. <input type="checkbox"/>	Terminal Emulation Boards
28. <input type="checkbox"/>	<input type="checkbox"/> Workstations	61. <input type="checkbox"/>	Diagnostic/Test Equipment
29. <input type="checkbox"/>	<input type="checkbox"/> Image Processing Workstations	62. <input type="checkbox"/>	DSU/CSU
30. <input type="checkbox"/>	<input type="checkbox"/> Front-End Processors	63. <input type="checkbox"/>	Data Compression Equipment
31. <input type="checkbox"/>	<input type="checkbox"/> Terminals	64. <input type="checkbox"/>	Microwave
32. <input type="checkbox"/>	<input type="checkbox"/> Printers	65. <input type="checkbox"/>	Fax Boards
33. <input type="checkbox"/>	<input type="checkbox"/> Cluster Controllers	66. <input type="checkbox"/>	VSAT
34. <input type="checkbox"/>	<input type="checkbox"/> Fax Machines	67. <input type="checkbox"/>	Fiber Optic
		68. <input type="checkbox"/>	Satellite
		69. <input type="checkbox"/>	ISDN
		70. <input type="checkbox"/>	PBXs (over 1000 lines)
		71. <input type="checkbox"/>	PBXs (200 - 1000 lines)
		72. <input type="checkbox"/>	PBXs (under 200 lines)
		73. <input type="checkbox"/>	Automatic Call Distributors
		74. <input type="checkbox"/>	Voice Messaging Systems
		75. <input type="checkbox"/>	Videoconferencing Systems
		76. <input type="checkbox"/>	Central Office Switch
		77. <input type="checkbox"/>	Voice Response/Processing
		78. <input type="checkbox"/>	Switched Voice
		79. <input type="checkbox"/>	Dedicated Leased Line
		80. <input type="checkbox"/>	Digital Data
		81. <input type="checkbox"/>	Switched Data
		82. <input type="checkbox"/>	Centrex
		83. <input type="checkbox"/>	On-Line Information
		84. <input type="checkbox"/>	E-Mail
		85. <input type="checkbox"/>	SMDS
		86. <input type="checkbox"/>	Image Processing
		87. <input type="checkbox"/>	Audio Teleconferencing
		88. <input type="checkbox"/>	Local Services
		89. <input type="checkbox"/>	WATS MTs
		90. <input type="checkbox"/>	International
		91. <input type="checkbox"/>	Virtual Networks
		92. <input type="checkbox"/>	Frame Relay
		XX. <input type="checkbox"/>	None of the above

10 What is your LAN environment? (check all that apply)

1. 4M TOKEN RING
6. FDDI
2. 16M TOKEN RING
7. LOCALTALK
3. ARCNET
8. 10BASE-T
4. ETHERNET
9. OTHER
5. STARLAN

11 Are you involved in the implementation of client/server applications?

Yes No

12 Which operating system do you utilize? (check all that apply)

01. DOS
06. VMS
02. UNIX/XENIX
07. NUBUS
03. OS/2
08. WINDOWS
04. OS/2 EX. ED.
09. MVS
05. MVS
10. OTHER

13 For which areas outside of the U.S. do you have purchase influence? (check all that apply)

1. Europe
4. Australia
2. Asia
5. Middle East
3. South America

14 Which of the following vendors equipment do you currently have installed in your network? (check all that apply)

Vendor	Mainframes	Minis
	A	B
01. DEC	<input type="checkbox"/>	<input type="checkbox"/>
02. IBM	<input type="checkbox"/>	<input type="checkbox"/>
03. AMDAHL	<input type="checkbox"/>	<input type="checkbox"/>
04. AT&T	<input type="checkbox"/>	<input type="checkbox"/>
05. BULL HNIS	<input type="checkbox"/>	<input type="checkbox"/>
06. NCR	<input type="checkbox"/>	<input type="checkbox"/>
07. DATA GENERAL	<input type="checkbox"/>	<input type="checkbox"/>
08. WANG	<input type="checkbox"/>	<input type="checkbox"/>
09. HEWLETT-PACKARD	<input type="checkbox"/>	<input type="checkbox"/>
10. PRIME	<input type="checkbox"/>	<input type="checkbox"/>
11. TANDEM	<input type="checkbox"/>	<input type="checkbox"/>
12. UNISYS	<input type="checkbox"/>	<input type="checkbox"/>
13. CONTROL DATA	<input type="checkbox"/>	<input type="checkbox"/>
14. OTHER	<input type="checkbox"/>	<input type="checkbox"/>

15 Please indicate the number of Microcomputers/Workstations:

- A. Presently installed in your network.
- B. The approximate quantity you plan to install in the next 12 months

Micros/Workstations Presently Installed

Install Next Month

A. B.

1. Macintosh XXXX

2. PCs Based on 80586 Chips

FDDI is curing gov't users' bandwidth ills

continued from page 15

Plans to deploy FDDI are also under way in Congress and the executive branch.

An interagency task force, called the Legislative Branch Telecommunications Network Standards Committee, is expected to announce plans next month for an FDDI net to connect numerous agencies.

"We are moving toward an FDDI fiber backbone for the legislative branch," said Shaw Zee, data communications manager at the Senate Computer Center. Once the FDDI network is in place, each agency will be responsible for getting routers and other net equipment attached to it, he added.

"The Senate and House already have a fiber backbone," Zee said. To date, 129 Senate office LANs have been installed.

The Capitol Hill FDDI net will be used for sharing computer files, electronic mail and imaging files over agency LANs, according to Zee.

FDDI is also being tested by NIH in a new prototype for medical imaging applications. Expected to be installed this month, the prototype may serve as a model for researchers.

The new 100M bit/sec network will be used by researchers to transfer images of

USL revises its Unix destiny

continued from page 15

system directly to developers.

Destiny will run DOS and Microsoft Corp. Windows programs, let users choose between Sun's OpenLook and the Open Software Foundation, Inc.'s Motif graphical interfaces, and offer its own graphical desktop.

"[Destiny] doesn't simply 'iconize' existing Unix conventions, like most graphical Unix interfaces today," said Joel Applebaum, president of San Jose, Calif.-based Univel.

Destiny replaces cryptic conventions with metaphors that more closely fit the action they wish to perform, he added. For example, in order to print a document, a user could simply drag the file onto a printer icon.

The operating system will also offer a modular architecture that allows users to only run the features they need, without sacrificing extra power for unwanted bells and whistles. The architecture also makes it easier for developers to extend the system by adding services, as in the case of Univel, or replacing existing services with their own.

The company will develop tools for the Destiny environment and ship them to developers and managers.

"I don't doubt that they have great technology," said Amy Wohl, a principal for Wohl Associates. "The question is, can they pull it off?"

Wohl also questioned USL's ability to influence the wider Unix world, much of which is already making a charge at mainstream commercial markets.

Witness Sun's Solaris 2.0. "If they can pull it off, it's brilliant," Wohl said. "The question is, will they pull it off? I'm just afraid they won't get the attention." □

computerized axial tomography (CAT) scans between workstations, according to NIH officials. Merike Kaeo, an engineer with the NIH network task group implementing FDDI, said the FDDI LAN will be installed in one of the 40 buildings at the NIH campus in Bethesda, Md.

Kaeo said the LAN is designed as a working prototype to prove that FDDI can support high volumes of medical imaging files. "We're committed to meet scientific research requirements," she noted. The FDDI LAN will consist of four workstations and three servers. □

Sun seeks to connect Unix, other systems

continued from page 15

users to cut and paste text between environments as well as access Solaris file and print services from within PC applications.

To run Windows or more advanced DOS applications, users can purchase the \$1,495 SunPC Accelerator SX, an SBus card whose 16-MHz Intel 486SX processor supports Super VGA graphics and emulates a 386 environment. It ships with SunPC Software.

The SunPC Accelerator DX, which is priced at \$1,995, ships with emulation software, supports Super VGA graphics and offers a 25-MHz Intel 486DX processor. The DX offers an integrated math coprocessor for compute-intensive applications such as computer-aided design drawing packages.

SunSelect will also be responsible for SunLink, Sun's Solaris-based port of NetWare, which is due in August.

Users can upgrade to SunPC from either Sun's DOS Windows or Insignia's SoftPC emulator for \$249. □

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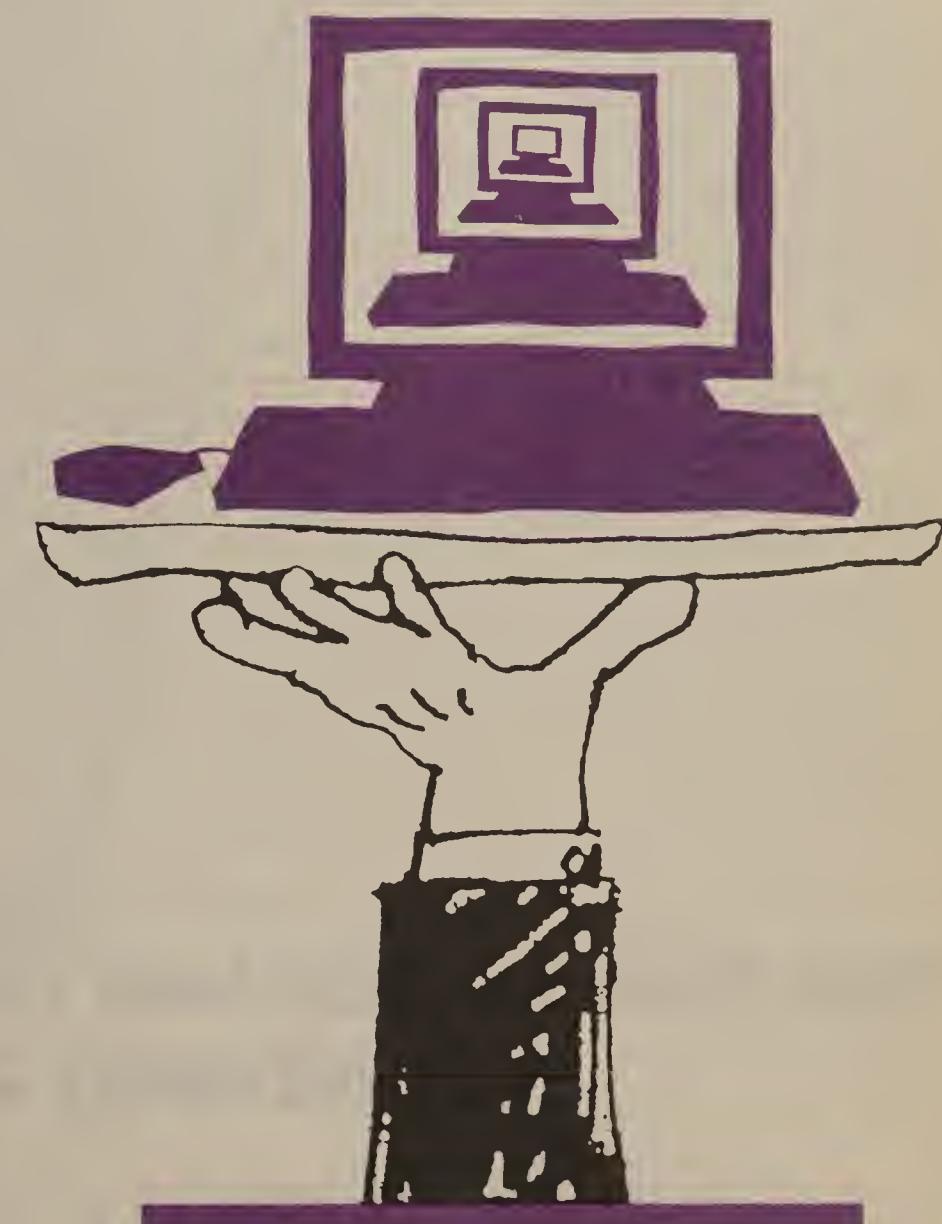
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 **Sun Microsystems**
Computer Corporation

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INTERNETWORKS

LAN-TO-LAN AND LAN-TO-WAN EQUIPMENT AND STRATEGIES

Worth Noting

"LANs and WANs are fast integrating. In a few years, it will be hard to tell the difference between a LAN and a WAN."

Keith Hoult
Director of technical operations
in Europe
Cabletron Systems, Inc.
Rochester, N.H.

Link Notes

Racal-Datacom, Inc. last week said it plans to develop by year end a new backplane and modules for its InterneX INX5000 Series hub that will enable it to support both token-ring and Fiber Distributed Data Interface local-area networks.

The company also plans to upgrade the hub's management system to offer more security features.

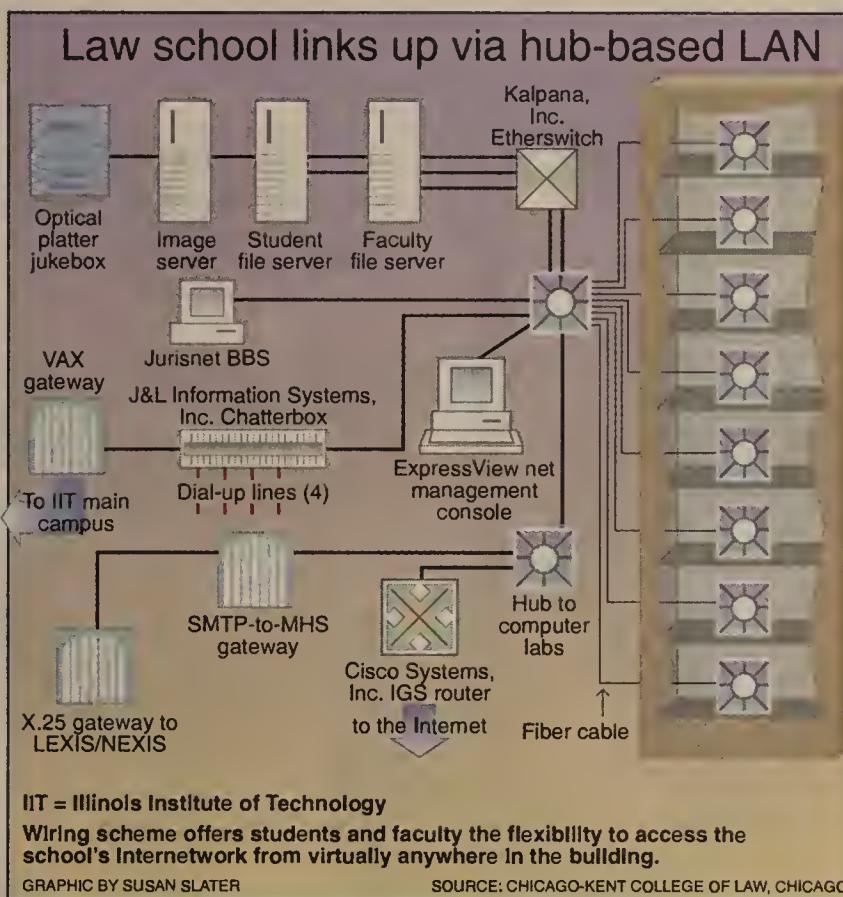
The INX5000, which is available in one-, three- and 12-slot versions, currently supports Ethernet modules only.

The company said its first token-ring offerings would be based on passive token-ring technology and have one retiming clock per module. Eventually, Racal-Datacom plans to offer active token-ring modules but declined to provide a time frame.

In addition, Racal-Datacom said it is developing a new high-speed backplane for the INX5000 that will support FDDI speeds of 100M bit/sec between modules.

The firm also said it plans to bolster the capabilities of its LANcentral Express network management system by offering enhanced security features such as per-port audit trails and encryption.

No time frame was offered for this enhancement. □



Plexcom MAUs boost 16M token-ring distance limits

Uses technology similar to IBM's proposed plan.

By Joanne Cummings
Staff Writer

SIMI VALLEY, Calif. — Plexcom, Inc. next month will demonstrate at INTEROP 92 Spring two new multistation access unit (MAU) modules for its Plexnet hub that will significantly increase the distance limitations for 16M bit/sec token rings.

The 8035 MAU will allow users to place attached stations as far as 656 feet away from the hub using unshielded twisted-pair wiring, and the 8035STP will let users place stations as far as 1,400 feet away using shielded twisted pair. The current 16M bit/sec token-ring distance limitation for unshielded twisted-pair wiring is about 360 feet, while the shielded twisted-pair limit is 800 feet.

The 8035 and the 8035STP are both 12-port modules that can support either 4M or 16M bit/sec token ring. The 8035STP can be used with either shielded or unshielded twisted pair, but the 8035 can be used only with unshielded twisted pair.

The 8035 is able to overcome current distance limitations by using a crystal-controlled retimer based on a technology similar to that proposed by IBM to the IEEE 802.5 Unshielded Twisted Pair standards committee. That committee is currently evaluat-

ing proposals for running 16M bit/sec token ring over unshielded twisted pair and is expected to finalize a standard by late 1993.

Plexcom chose IBM's technology over another proposed to the committee that was based on phase lock loop circuitry and a voltage-controlled oscillator, said Alan Pocrass, Plexcom's president. He said his company's approach offers comparable performance but needs fewer components, making it less susceptible to failure.

Pocrass said the standards committee will probably only require vendors to meet a specification for the amount of jitter on the signal, and therefore, both techniques are expected to meet the standard.

The crystal-controlled retimer provides active retiming, which means it reduces signal jitter and retimes the signal to preserve signal quality over long distances, Pocrass said. It retimes the signal at the card level as well as the port level.

The 8035 and 8035STP each have two RJ-45 ports for linking with other hub modules, while each Plexnet chassis can hold a maximum of 14 8035 modules for a total of 168 token-ring ports. The modules are available now and cost \$1,895 each. □

Law school internet provides for future

Chicago-Kent's hub-based net gives students, faculty ubiquitous desktop-to-LAN connectivity.

By Joanne Cummings
Staff Writer

CHICAGO — Chicago-Kent College of Law took advantage of a recent move to a new building to create a LAN internet that gives students and faculty nearly ubiquitous access to services ranging from electronic mail to class notes.

The school, which had outgrown its previous facility, chose the new building after a five-year search. Chicago-Kent then concentrated on assembling an internet that not only supported its current needs, but also its anticipated requirements for imaging and 100M bit/sec connectivity to the desktop, according to Ronald Stoudt, professor of law and director of computer development at the school.

The internetwork consists of

800 ports and two Novell, Inc. NetWare file servers linked by twisted-pair wiring to 10 David Systems, Inc. 10Base-T Express-Net Concentrators throughout the building. The concentrators in turn, are linked by a fiber backbone (see graphic, this page). Approximately 250 personal computers are active at any one time, Stoudt said.

The school environment differs from a traditional office in that the number of users is constantly changing and is always more than the number of desks and offices available, according to Stoudt. Since it would not be feasible to supply each student with their own computer, Chicago-Kent installed the internetwork to provide local-area network access to users wishing to

(continued on page 36)

Firm to add LocalTalk hub module

SANTA CLARA, Calif. — SynOptics Communications, Inc. today is expected to introduce a new LocalTalk module for its LatisNet 3000 hub that provides LocalTalk-to-Ethernet routing and Internet Protocol gateway functions.

The LatisTalk Model 3394 router module was developed with Farallon Computing, Inc., which contributed its PhoneNet technology for running Apple Computer, Inc. AppleTalk over unshielded twisted-pair wiring. That makes the Model 3394 one of the only hub modules capable of running AppleTalk over native LocalTalk wiring, according to Don Bergal, product marketing manager at SynOptics. Most other hub modules run AppleTalk over Ethernet wiring, he said.

The Model 3394 card performs three functions. First, it acts as a structured wiring module for AppleTalk local-area networks. Each of the module's 16

RJ-11 ports can support as many as four AppleTalk devices that are either daisy-chained or connected via a \$400 patch panel to the hub. This allows for a total of 64 connections, although Bergal said SynOptics recommends a maximum of 16 to maintain peak performance.

The Model 3394 also provides routing functions for linking remote AppleTalk networks over Ethernet backbones, although Bergal declined to provide routing performance figures.

Gateway action

Finally, the Model 3394 can act as an AppleTalk-to-IP gateway for linking LocalTalk networks with Transmission Control Protocol/IP-based nets. It provides the AppleTalk-to-TCP/IP translation, enabling Apple Macintosh devices to access TCP/IP files, printers and host services as if they were native AppleTalk services, Bergal said.

The module also contains a Simple Network Management Protocol agent and can be managed by SynOptics' LatisNet Manager or any other SNMP-based net management system.

Scheduled for availability next month, the Model 3394 is priced at \$3,595. □

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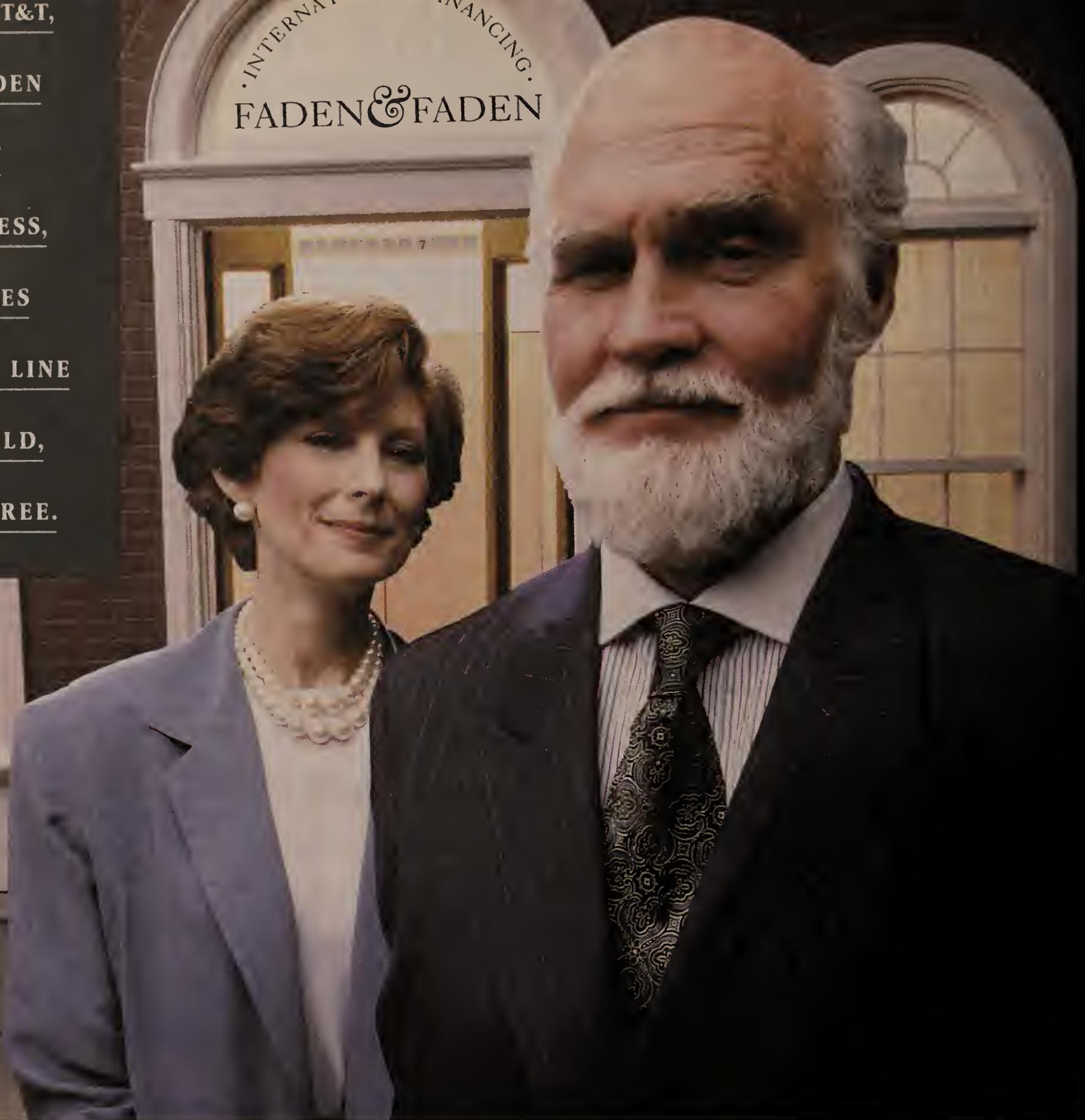
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GLOBAL SERVICES

DOMESTIC AND INTERNATIONAL VOICE/DATA SERVICES, ACCESS EQUIPMENT AND REGULATORY ISSUES

Worth Noting

Enter-Prize, The Ohio Bell Telephone Co.'s employee suggestion program, produced \$3.5 million in savings and generated \$1.4 million in revenue during 1991. Of the 858 innovations submitted by employees, 102 were accepted and about 300 are still being evaluated.

Local carriers dabble with fiber trials

Carrier	Number of fiber-to-home trials*	Investment (Thousands of dollars)	Number of fiber-to-curb trials**	Investment (Thousands of dollars)	Number	Other trials Type	Investment (Thousands of dollars)
Ameritech	2	\$2,490	0	—	0	—	—
Bell Atlantic Corp.	1	NA	1	NA	0	—	—
BellSouth Corp.	10	\$10,380	5	\$3,400	2	SONET	\$300
Nynex Corp.	0	—	1	\$1,500	1	Digital local-loop carrier	\$200
Pacific Telesis Group	0	—	1	\$1,200	3	SONET	\$168
Southwestern Bell Corp.	2	\$2,580	1	\$630	0	—	—
US West, Inc.	2	\$600	3	\$2,000	0	—	—
Contel Corp.	2	\$2,280	0	—	0	—	—
GTE Telephone Co.	1	\$15,600	0	—	1	Broadband ISDN	NA
Sprint Corp.	5	\$1,630	4	\$140	0	—	—
Total	25	\$35,560	16	\$8,870	7	—	\$668

*Fiber to home = Fiber runs to residence

**Fiber to curb = Fiber runs to neighborhood; copper runs remaining distance to residence

NA = Not available

SONET = Synchronous Optical Network

SOURCE: FEDERAL COMMUNICATIONS COMMISSION, WASHINGTON, D.C.
GRAPHIC BY SUSAN J. CHAMPEONY

MCI study examines FTS 2000 pricing

Says government is paying more under the federal contract than it would using other existing tariffs.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — In a continuing effort to prove that FTS 2000 disserves federal users, MCI Communications Corp. has released a study indicating the government is paying hundreds of millions of dollars more each year for telecommunications than commercial users do.

MCI commissioned Putnam, Hayes & Bartlett, Inc., an economic and management consulting firm in Cambridge, Mass., to examine prices the government pays for switched voice service under Federal Telecommunications System 2000.

Robert Leone, senior adviser at the consulting firm, concluded that federal agencies will pay between \$150 million and \$172 million more during fiscal years 1991 and 1992 than commercial users are paying for service under AT&T's Tariffs 12 and 16.

The study's findings corroborate a report issued last September by the General Accounting Office (GAO), the accounting arm of Congress. According to the GAO report, federal users were being overcharged and would pay \$148 million more for switched voice services during fiscal years 1991 and 1992 than commercial customers if prices were not reduced.

AT&T and Sprint Corp. contend they are providing FTS 2000 at rates comparable to commercial deals and attribute price differences to contract requirements that are more rigorous than those for commercial nets.

No one disputes that the government is saving hundreds of millions of dollars with FTS 2000. Even Leone's study shows this.

Under the previous telecommunications contract, called FTS, federal agencies paid about 35 cents per minute for switched voice. They paid an average of 13.2 cents per minute in 1991 under FTS 2000 and are now paying 11.9 cents per minute, according to Leone.

The argument now is whether the government should be saving more. Leone said AT&T offers

switched voice service at 9.33 cents per minute under Tariff 12 Option 72 — originally designed for Digital Equipment Corp. — and 9.7 cents per minute in a deal for Congress under Tariff 16, which covers competitively bid government contracts.

The argument over prices is one more reminder of FTS 2000's turbulent history.

FTS 2000 was the largest telecommunications contract ever awarded, and such high stakes created a tense, almost paranoid, environment.

If the contract had not been divided between two of the three top carriers, virtually shutting MCI out of the government market for 10 years, it is likely these questions would not be surfacing now.

MCI's rivals grumble that it is no accident that the carrier released its report now, just weeks before AT&T and Sprint must submit bids for new FTS 2000 prices.

The contract was set up to have a price rebid in its fourth and seventh years to ensure that government prices continued to be driven down.

But in 1988, long-distance rates were poised for the most precipitous drop in history and it turned out that the rebid in four years would not be enough to keep up with savings in commercial contracts.

Although FTS 2000 has an additional provision that its rates must be equal to commercial rates at all times, how does one enforce that in an environment of constantly changing prices?

The MCI study is the latest in a long line of attempts by the carrier to pry open the FTS 2000 contract to outside bidders. It has filed several protests, tried to limit the scope of contract enhancements, accused the government of mismanaging the contract and, most recently, gone to Capitol Hill, urging lawmakers to lift the rules requiring federal agencies to purchase service from FTS 2000.

All this has resulted in an acrid series of insults among carriers. MCI claims it is only trying to (continued on page 52)

Voice response tax filing could offer IRS a big return

Ohio taxpayers use TeleFile to speed process.

By Ellen Messmer
Washington Correspondent

CINCINNATI — While many U.S. citizens were frantically filing their federal taxes last week, 119,000 taxpayers in Ohio were resting easy. They had filed their returns using an experimental Internal Revenue Service interactive voice processing system.

The TeleFile pilot system speeds the processing of taxpayer returns by sparing the agency from manually entering data from written forms. Instead, taxpayers enter data via the keypad on their push-button telephone.

Approximately 700,000 Ohio taxpayers who would have usually filed an IRS 1040EZ form were eligible to participate in the voluntary TeleFile project. The significant response is regarded as a good sign by the IRS, which began evaluating TeleFile last week to see if national deployment should be considered.

Taxpayers who used TeleFile dialed an 800 number, and the voice response system instructed them to key in their personal identification number on their tax package mailing label, social security number and earnings.

After asking the taxpayer to key in their W-2 information, the personal computer-based TeleFile system then computes the

balance due or the refund owed. The system repeats all information entered by the taxpayer and informs the user when the process is completed and the tax statement is officially filed.

At the heart of TeleFile is Microlog Corp.'s VCS 3500 voice processing system, which has been installed at the IRS Cincinnati Service Center. The VCS 3500 can handle as many as 96 simultaneous calls and automatically transfer the completed tax information directly into an IRS-owned mainframe.

Don Roberts, an IRS spokesman, said the cost savings from TeleFile have not yet been estimated. "The main purpose now is to test the technological feasibility of receiving and processing tax returns and to get an idea of taxpayer receptivity," he said.

The IRS may extend the pilot to other states and possibly expand it to support other tax forms, although complicated tax forms would involve a more lengthy call.

Ironically, the TeleFile system has not eliminated a government form, but created a new one. After taxpayers have officially filed by phone, they still have to send a signed copy of the newly created IRS 1040-TEL form with their W-2 statements. □

Regulatory Update

The National Association of Regulatory Utility Commissioners (NARUC) last week released a letter that it sent to the chief executive officers of the regional Bell holding companies to inform them of an RBHC audit that a NARUC/Federal Communications Commission team intends to begin late this month.

NARUC said the year-long audit will seek to determine if illegal cross-subsidies exist in RBHC-affiliated companies and whether current regulations are adequate to prevent such activities.

The Utilities Telecommunications Council (UTC), a group representing electric, gas, water and steam utilities, has asked the Federal Communications Commission to defer action in its 1.8-GHz to 2.2-GHz spectrum-reserve proceeding until it finds adequate replacement spectrum for microwave users that are likely to be displaced under the FCC's proposed plan.

UTC asked the FCC to start a rule-making proceeding to make the four frequency band ranges available for routine licensing for private operational microwave service. □

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—InfoWorld, 3/2/92



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—InfoWorld, 3/2/92

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—InfoWorld, 3/2/92

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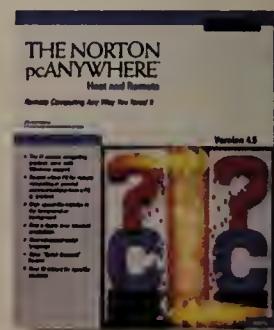
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ENTERPRISE APPLICATIONS

CLIENT/SERVER AND ENABLING SOFTWARE: DISTRIBUTED DATABASE, MESSAGING, GROUPWARE AND IMAGING

Worth Noting

"The network is the reason we exist — it is the computing platform for the '90s."

Stewart Schuster
Vice-president of marketing
Sybase, Inc.
Berkeley, Calif.

Store & Forward

Odesta Systems Corp. has announced availability of its Open Odesta Document Management System (ODMS), an object-oriented development environment that can be used for creating client/server work flow and document management applications.

Open ODMS is a multiplatform development system supporting Microsoft Corp. Windows, Apple Computer, Inc. Macintosh clients and Digital Equipment Corp. VAX computers as servers.

For more information, contact Odesta at (708) 498-5615.

Simpact Associates, Inc. has unveiled Remark! for Microsoft Windows, a voice integration product that allows networked personal computers to record, play and manage voice information as part of a Microsoft Corp.'s Windows application.

With the product, users can store voice information as part of an electronic document that can be moved across the net and shared with other users in applications that support Windows' Dynamic Data Exchange interface or Object Linking and Embedding function.

Remark! for Microsoft Windows is priced from \$5,000 to \$20,000, depending on configuration and the number of concurrent users. For more information, contact Simpact at (619) 565-1865. □

Netwise pack bridges gap between clients, servers

Handles translations between transport protocols.

By Jim Duffy
Senior Editor

BOULDER, Colo. — Netwise, Inc. unveiled software that supports communications between networked clients and servers using different transport protocols.

The software, called Duet, runs on a single server on a local-area network and can provide workstations with access to other servers in an enterprise. It handles translations among different transport protocols used to carry messages between clients and servers.

Duet works with Netwise's RPC Tool and RPC Exec software products, which generate remote procedure call (RPC) messages for communications among workstations and IBM mainframes, respectively. Those RPC messages rely on protocols, such as the Transmission Control Protocol/Internet Protocol or Novell, Inc.'s Internetwork Packet Exchange (IPX), for transport across a network.

Using Duet, for example, a

Microsoft Corp. Windows application on a client in a Novell NetWare IPX network could access an IBM mainframe linked to the NetWare server via IBM Systems Network Architecture protocols.

When the Windows client generates an RPC message requesting data from the mainframe, the Duet software running on the NetWare server will handle the translation of the IPX transport protocols to SNA and pass the request on to the host.

Greg Mann, vice-president of marketing at Netwise, said Duet is designed to shield programmers from the complexities of underlying transport protocols. Without Duet, both the client and target server machines would have to support a common set of protocol stacks.

The software currently runs on IBM OS/2 Extended Edition servers and performs protocol translation for SNA and TCP/IP networks. A version of Duet that supports IPX will be unveiled later.

(continued on page 24)

Arbor to unveil database server for spreadsheets

By Timothy O'Brien
West Coast Bureau Chief

SANTA CLARA, Calif. — Arbor Software Corp. is expected to announce next week a database server especially designed to handle large quantities of multidimensional spreadsheet data.

Arbor's eSSbase Enhanced Spreadsheet Data Server can combine hundreds of spreadsheets in a database that users can access through Lotus Development Corp.'s 1-2-3 or Microsoft Corp.'s Excel.

The company claimed the product enables users to access billions of spreadsheet cells in a dynamic data structure, allowing financial analysts to pull together large amounts of spreadsheet data to create such things as summary and variance reports and budget analyses.

"People know spreadsheets, so what we've done is built a powerful database server that can be used for handling spreadsheet

processing on mainframe-class problems," explained Michael Florio, vice-president of marketing at Arbor.

The eSSbase server software resides on a dedicated or non-dedicated LAN-based personal computer running OS/2, while the eSSbase client software runs on a standard DOS or Microsoft Windows computer.

The eSSbase server can run on Banyan Systems, Inc.'s VINES, Microsoft's LAN Manager and Novell, Inc.'s NetWare, and supports Named Pipes communications.

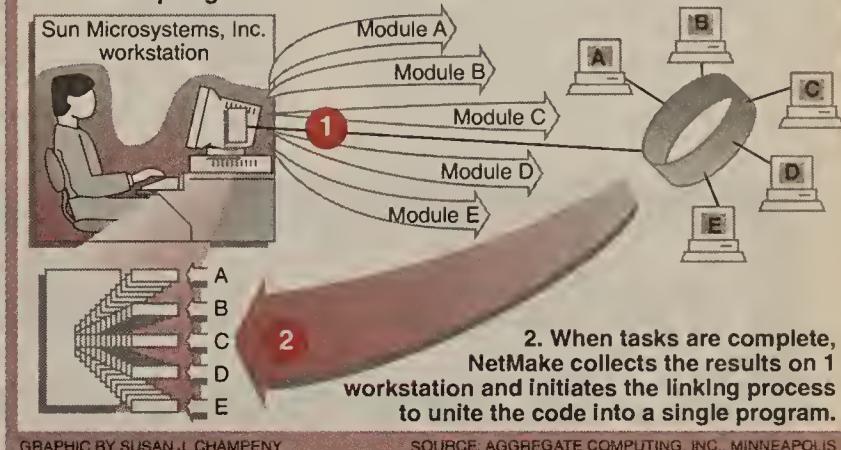
The product can accept multiple spreadsheet models from 1-2-3 or Excel and stores the information so that it can be accessed without the constraints of record structure, indexing and programming requirements of relational databases.

Rather than assigning data by cell, as an individual spreadsheet does, the eSSbase server uses la-

(continued on page 24)

Distributing tasks across the network

1. Aggregate Computing's NetMake distributes program routines for compiling.



2. When tasks are complete, NetMake collects the results on 1 workstation and initiates the linking process to unite the code into a single program.

SOURCE: AGGREGATE COMPUTING, INC., MINNEAPOLIS

Start-up unveils new distributed compiler

Aggregate Computing says NetMake will reduce compilation time and increase net performance.

By Timothy O'Brien
West Coast Bureau Chief

SANTA CLARA, Calif. — Start-up Aggregate Computing, Inc. has announced a tool that allows developers to distribute the task of compiling program code over many computers on a Unix network.

NetMake is based on the "make" utility in Unix that defines compiling parameters. It allows compilation routines to be run in parallel on many computers to decrease compilation time, improve developer productivity and make better use of network resources.

"NetMake allows intelligent use of, and transparent access to, networkwide resources," said Joan Wrabetz, founder and president of Aggregate Computing.

NetMake is for developers who work inefficiently because they have primitive tools.



"NetMake is for software developers who work inefficiently because the tools they have are primitive."

NetMake runs on networked Sun Microsystems, Inc.'s workstations. It takes individual program routines and sends them to

available workstations for compilation. When the tasks are completed, NetMake collects the results on one workstation and initiates the linking process, which unites the code into a single program.

Wrabetz claims users can decrease compiling time by as much as 80%.



Depending on the size and speed of the network, Wrabetz claims users can decrease compiling time by as much as 80%. The performance increase is such that programs could continue work uninterrupted while small compiles are taking place around the network.

By using NetMake, Wrabetz said one beta user was able to reduce the time it took to compile a program from seven hours to only 1½ hours.

NetMake is the first offering in Aggregate Computing's planned NetWorks suite of distributed computing products, which are being designed to help users leverage underutilized network computing resources.

The company's goal is to provide developers with tools and

(continued on page 24)

Arbor releases spreadsheet server

continued from page 23

bels for primary data elements, intermediate consolidation lines and summary consolidation lines. In this way, users can access the data using standard spreadsheet commands and these labels rather than using relational database queries. To use the eSSbase server, a user opens a spreadsheet at the desktop and uses spreadsheet notation to define the data that is needed for a cell.

The eSSbase client software then formats the inquiry and routes it to the server, which supplies the client with the requested information. The end user is shielded from the underlying translation and network complexity.

Arbor hopes the eSSbase server's tight integration with standard spreadsheet software will allow it to compete against older mainframe applications that centrally collect and organize transaction data for financial analysis in more batch-oriented operations.

For example, Florio said users in early

beta sites have been able to reduce computational times on tasks that took hours on a host computer to only minutes on a PC-based eSSbase server.

Another benefit of eSSbase server's client/server architecture is that it allows simultaneous access to large amounts of live, shared data among users in a work group.

Entry-level pricing for the eSSbase server is \$21,950, which includes the capacity for five simultaneous users on the server, plus 10 copies of the client software. Larger configurations vary in price. □

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Netwise pack bridges client, server gap

continued from page 23

er this year and run as a NetWare Loadable Module on NetWare servers, according to the company.

Duet is available now and is priced from \$4,100 to \$14,000.

Other deals

Meanwhile, Netwise has entered into cooperative selling agreements with database giants Oracle Corp. of Redwood Shores, Calif., and Ingres Corp. of Alameda, Calif. Both companies will recommend Netwise RPC products to customers looking to link desktop applications to disparate databases.

Under the arrangements, customers will be able to combine Netwise RPC tools

"We provide a way [for users] to do CICS transactions. That's a flexibility they don't have right now."

▲▲▲

with Oracle and Ingres development tools to build applications that can access a variety of distributed databases via IBM CICS transactions. Those development tools do not currently support CICS, according to Mann.

"We provide [Oracle and Ingres users] with a way to do CICS transactions," he said. "That's a flexibility they don't have right now."

The combination of products will help users meld older CICS applications on mainframes with Oracle, Ingres and other vendors' databases, Mann added. □

Start-up unveils tool for code compilation

continued from page 23

services that let them treat the network as a single resource, enabling existing applications to take advantage of computing facilities across an enterprise.

The NetWorks suite will include application program interfaces (API), tools and other services that utilize the standard operating system interfaces and communication services within Unix and eventually other operating systems.

Among other things, NetWorks services will collect and share status information about the computers on the network, remotely execute tasks and manage queuing.

NetWorks products expected to be announced later this year include NetShare, which locates available processors on a network and schedules tasks; NetBrowse, a set of tools to monitor net resources; and the NetWorks Developers Toolkit, a set of standard APIs that can be used by developers to build distributed applications.

NetMake is available now for the Sun platform at a price of \$5,000 for a five-node package. Additional nodes are \$1,400 each. □

INDUSTRY UPDATE

VENDOR STRATEGIES, MARKET TRENDS, ALLIANCES AND FINANCIALS

Worth Noting

ADC Kentrox has established a Data Exchange Interface (DXI) Compatibility Testing Lab at its Portland, Ore., facility. The lab will test vendor implementations of DXI, an emerging standard for linking data termination equipment to Switched Multimegabit Data Service nets.

People & Positions

Microsoft Corp. last week announced the promotion of **Bernard Vergnes** to the newly created position of the president of Microsoft Europe.

Vergnes will be responsible for overseeing the company's service and support operations in Europe.

In addition, he will be charged with preparing Microsoft Europe to meet the changing needs of customers during Europe's market unification.

Prior to assuming this post, Vergnes was vice-president of Microsoft Europe and established the unit's headquarters in Paris.

Tyrone Pike has been named president and chief executive officer at **Global Village Communication, Inc.**, a Menlo Park, Calif., maker of Apple Computer, Inc. Macintosh connectivity products.

He will be responsible for directing the company's efforts to identify new markets and oversee product development.

Previously, Pike was manager of strategic planning and business development.

(continued on page 27)

Global consortium preps ODA developers' tool kit

Will include set of APIs to simplify programming.

By Ellen Messmer
Washington Correspondent

BRUSSELS, Belgium — An industry consortium formed a year ago to promote the Office Document Architecture (ODA) standard has announced it will release a software developer's tool kit for ODA early next year.

Officials from the ODA Consortium said the new tool kit will consist of a set of application program interfaces (API) to simplify programming of ODA-compliant applications used to create compound documents. The ODA tool kit will also contain other code, including a PostScript Description Language (PDL) Generator to ready data for printing on an Adobe Systems, Inc. PostScript printer.

ODA is a complex ISO standard for combining text, image, video and voice into one document. "The purpose of ODA is to allow information to flow freely without regard to what platform it's on," said Carl Patton, consulting executive at Unisys Corp. and a member of the ODA Consortium's board of directors.

Patton said vendors backing

ODA last year formed the consortium (see graphic, this page) primarily to create a common set of APIs to save software developers from writing new code for every platform. "The tool kit is to encourage the use of ODA," he said.

The consortium's tool kit will consist of two types of APIs — the Document Application Pro-

Office Document Architecture Consortium

- Digital Equipment Corp.
- Groupe Bull SA
- IBM
- ICL plc
- Siemens Nixdorf
- Information Systems, Inc.
- Unisys Corp.

SOURCE: ODA CONSORTIUM, BRUSSELS, BELGIUM
GRAPHIC BY SUSAN J. CHAMPEY

file (DAP) Level API and the ODA Level API. The DAP Level API is being developed by ICL plc and the ODA Level API by Digital Equipment Corp.

The DAP Level API would allow programmers to create applications that treat each document

(continued on page 27)

INDUSTRY BRIEFS

Banyan, NCR sign reseller pact. As expected, Banyan Systems, Inc. and NCR Corp. last week announced a reseller agreement at Banyan's user conference in Chicago ("Banyan to ink AT&T deal, roll out DCA-based gateway," NW, April 13) that is expected to generate \$35 million in revenue during the next three years.

Under the terms of the agreement, NCR, which is owned by AT&T, will jointly market and support Banyan VINES network products in the U.S. and Canada. The deal, which will ultimately be extended worldwide, also calls for some of Banyan's resellers to market NCR products and for some existing NCR resellers to offer Banyan products.

Banyan and NCR are collaborating to certify NCR systems as server platforms for VINES. Initially, certification is planned for the NCR 3335, 3345, 3445 and 3447 uniprocessor computers with the first certification expected by this quarter.

BellSouth, PictureTel ink comarketing deal. BellSouth Corp. and PictureTel Corp. last week announced they have signed an agreement under which they will comarket PictureTel's videoconferencing equipment in conjunction with BellSouth's switched digital services. Under terms of the arrangement, BellSouth and PictureTel sales forces will make joint sales calls. PictureTel previously has signed comarketing

(continued on page 27)



"Twelve months ago, we were in a position where our revenues and expenses were a little out of whack and we weren't producing the kind of bottom line we wanted."

▲▲▲
Mike Pascoe
President
Newbridge Networks, Inc.

Newbridge regaining financial strength

Benefiting from carrier efforts to upgrade nets to provide bandwidth-on-demand and virtual services.

By Bob Brown
Senior Editor

KANATA, Ontario — Thanks in large part to its continued focus on carrier networks and improved cost controls, Newbridge Networks Corp. is regaining its financial health following a few disappointing years.

Cashing in on carriers' need to upgrade their networks to support virtual and bandwidth-on-demand services, Newbridge has won a series of large contracts for its MainStreet data communications equipment line that promise to pump up future revenues.

That future will be built on a more stable foundation. Financial analysts credit cost controls implemented by a Newbridge executive committee with bringing the company back into the black in fiscal-year 1992, which ends April 30, after the company posted an \$11.9 million loss in 1991.

While users may be concerned that Newbridge is dedicating more resources than ever to the carrier market and carrier sales are growing as a percentage of the firm's overall business, the momentum still should be welcome news to users, said Mike Pascoe, president of Newbridge Networks, Inc., the company's U.S. subsidiary.

Many users are moving traffic from private to public nets and should benefit from equipment sales to carriers, Pascoe said. And revenue from the carrier business is enabling the company to invest in new markets, such as inverse multiplexers, and emerging technologies, such as Asynchronous

Transfer Mode. According to Pascoe, carriers are more proactive in rolling out new services. "We're fortunate to have the right product at the right time," he said. "How that could affect [users] is varied, but one thing that comes out of this is that the more revenue we have to turn into R&D, the more we can evolve our product line in the direction users need to see us move."

Research and development was the only major expense that grew during the third quarter, which ended Feb. 1. R&D spending totaled about 13% of third-quarter revenue, which climbed 32% to \$45.9 million from \$34.7 million for the similar quarter last year. Analysts expect revenue to grow by more than 20% this year and next year.

Meanwhile, expenses have decreased, while assets and orders have increased. "Twelve months ago, we were in a position where our revenue and expenses were a little out of whack and we weren't producing the kind of bottom line we wanted," Pascoe said. "We were overly zealous in our anticipation of the growth of the company and had evolved our manufacturing capabilities too quickly, among other things."

Newbridge's original strategy of serving both carriers and private users is paying off, according to Lap Lee, a telecommunications analyst at Gordon Capital Corp., a New York brokerage firm. With the domestic private net market relatively flat, Newbridge is emphasizing its international and

(continued on page 27)

The absolutely incredible story of how George Gilbert went from ordinary network manager to network god overnight...



...and he did it without FDDI! For George Gilbert (not his real name), yesterday began just like any other day for any other hardworking network manager across America. But before the sun had set, something truly amazing had happened. Something George could never have imagined—not even in his wildest dreams. Because during the day,

George miraculously turned his sluggish, over-burdened 10 Mbit/s Ethernet LAN into a 70 Mbit/s Ethernet powerhouse. All by plugging in a single box no bigger than a hi-fi component. All without reconfiguring the basic layout of his LAN. All without FDDI. George's solution? The remarkable and proven EtherSwitch.

Based on reliable switching technology that has stood the test of time, the EtherSwitch from Kalpana gives George a perfect and immediate solution to

Ethernet congestion. In fact, it's a dream come true! Because instead of sending a single packet one at a time, the EtherSwitch works like a telephone PBX to send multiple packets simultaneously. That's Parallel Networking. From the inventor of Ethernet switching technology. And it can add up to 70 Mbit/s performance or

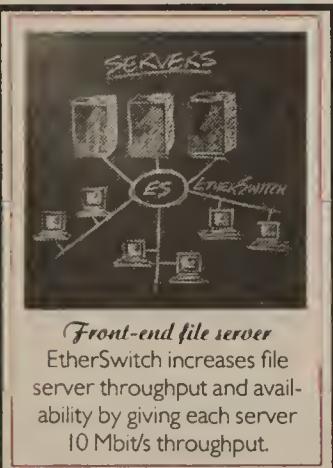
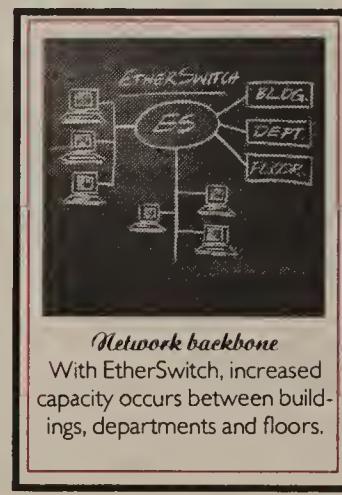
more! Plus George knows that with the amazing EtherSwitch, he will always be able to filter and forward 100% of all traffic with complete accuracy. And with low latency. No wonder he feels like he's suddenly sitting on top of the world. So simple, all you do is plug it in. Fortunately for George, the EtherSwitch is also a snap to install. And it's

as easy to operate as a household appliance. By simply plugging it into his existing Ethernet LAN, he gets immediate results without reconfiguration. So from this day forward,

whenever and wherever George sees congestion, he can simply plug in another EtherSwitch and become a hero all over again. A small price for such big improvements. With EtherSwitch, George is already beginning to reap an incredible return on his investment. All while adding new pep and unimagined vitality to his once lifeless Ethernet LAN. Plus he's leveraging his investment in existing Ethernet equipment. And best of all, these astonishing results come at a cost that's much, much lower than you would expect. Only \$1,300* per port or less. It's almost too good to be true! Perfect for all Ethernet applications. George was also quick to discover that almost every situation can be improved with an EtherSwitch. Because with just the snap of a finger, he's dramatically speeding communication among two workers sitting side by side. And he's doing the same among two workgroups on different floors as well as two different divisions in two completely separate buildings. He just adds an EtherSwitch wherever there's a delay. Then he lets it take care

of everything else. Amazed? You too can have an incredible transformation! George Gilbert is by no means the only network manager who is becoming an overnight sensation. It could easily happen to you. And to your Ethernet LAN. Simply by adding the amazing EtherSwitch to your network right now. To see how, all you have to do is fax Kalpana your current LAN configuration at 408/428-1161 (be sure to point out where congestion is occurring). And within 24 hours we'll respond with a customized, cost-efficient solution to boost Ethernet throughput. Or to see an EtherSwitch in action, call Kalpana now for your evaluation unit (800/488-0775).

Incredible things are just waiting to happen!



Now you too can:

- Have a cost-efficient, plug 'n go answer to Ethernet congestion problems
- Boost Ethernet throughput to 70 Mbit/s without the high cost of FDDI
- Extend the life of your Ethernet LAN
- Discover a reliable solution that grows as your needs grow



Kalpana

The Parallel Networking Company

*Suggested Retail Price

Newbridge regaining financial strength

continued from page 25

carrier businesses, he explained.

The firm's multiplexers, such as the 3645 MainStreet High Capacity Bandwidth Manager, which combines channel bank, digital cross-connect and multiplexing capabilities, are proving increasingly popular among carriers. Many of them have begun upgrading their networks in an attempt to win back the business of users that built private networks during the 1980s.

British Telecommunications PLC (BT) earlier this month signed what analysts said was a three- to five-year contract with Newbridge for as much as \$120 million in equipment. BT, which declined to comment on the supply agreement, will use Newbridge gear to provide new bandwidth-on-demand services, Pascoe said.

The BT contract, which may be Newbridge's largest ever, is one of a handful of recent victories for the company. On the carrier side, Embratel in Brazil, Mercury Communications, Ltd. in the U.K. and Unitel Communications, Inc. in Canada have signed multimillion-dollar contracts with Newbridge during the past few months. About half of Newbridge's revenue now comes from carrier sales, up from about 20% in fiscal 1991.

On the private network side, Newbridge landed a major win as a subcontractor to MCI Communications Corp. for the Federal Aviation Administration Leased Interfacility National Airspace Communications System. That contract could bring in \$30 million to Newbridge over three years.

Andy Schopick, an analyst at Nutmeg Securities, Ltd., a Westport, Conn., brokerage firm, said Newbridge's growth potential appears to be greatest in the carrier market.

While many carriers typically base ser-

vices on central office switches, many are turning to Newbridge for overlay and core networks to support new services, he said. Although some carriers may only use Newbridge equipment until the desired capabilities are available at their central offices, several regional Bell holding companies have been using Newbridge for years, proving the gear is also sought after as a long-term solution, Schopick said.

Newbridge's products are a good fit for carrier network upgrades because of their partitioning features, he explained. Network partitioning enables a carrier to subdivide its network into virtual nets for multiple users.

"Partitioning has really made Newbridge's platform a product of choice," Schopick said, and so has a line of its net management products that enable carriers to give users better network management capabilities.

Newbridge's adherence to carrier standards, such as the M13 T-1 framing standard and the forward and backward compatibility of its products also is helping the company win big contracts, said Jennifer Pigg, an analyst at The Yankee Group, a market research firm in Boston.

"Newbridge built its products from the ground up to work in central office environments," she said.

Pascoe acknowledged that the firm's public net business will continue to grow as a percentage of overall business due to the size of the contracts in that market, but he stressed that the private network business is important to the company. He expects its private network business to grow in absolute dollars, as well.

"The private network market is really important to us because the Fortune 500 companies tend to drive leading-edge product development," Pascoe said. "If we were to drop our focus on private networks, we'd end up being displaced in just a few years." □

People & Positions

continued from page 25

In 1983, he founded LANSystems, Inc. and continues to be chairman of the board for that company's systems integration business.

Pike replaces Len Lehmann, who is a co-founder of Global Village, as president and CEO. Lehmann will assume the role of vice-president of engineering and focus on new product development.

Network Management, Inc. (NMI) has appointed **James Knowles**, formerly senior operating officer at Salomon Brothers, Inc., to serve as president of its newly formed Applications Development Division.

The unit was established to assist customers in moving from a mainframe environment to one with a distributed network.

In his new position, Knowles will oversee development of custom-designed software applications for NMI customers. □

Industry Briefs

continued from page 25

agreements with other carriers, including AT&T, Bell Atlantic Corp., MCI Communications Corp. and Nynex Corp.

Teleos raises new funds. Teleos Communications, Inc., an Eatontown, N.J., maker of network access devices, has announced the closing of a \$5.8 million round of financing from venture capital firms Venrock Associates and Venture Partners.

The funds will be used to expand the firm's sales and service organizations as well as aid product development.

Novell gobbles up software firm. Novell, Inc. has acquired International Business Software, Ltd. (IBS), a Sunnyvale, Calif., maker of Apple Computer, Inc. Macintosh connectivity software, for \$5.2 million in cash.

IBS sells an Apple AppleTalk Filing Protocol-compatible distributed file system software package, called DataClub Classic, which lets Macintosh users access information and services across a local-area network without knowing where on the net they reside. The software gives users access to a virtual file server that uses disk space from the computers on a peer-to-

peer net.

DataClub Elite extends the virtual server to include one or more dedicated servers.

"IBS has developed excellent distributed file technology that can be incorporated into simpler networking solutions," said Darrell Miller, executive vice-president of Novell.

Sprint lands gov't EDI customer. Sprint Corp. last week announced that the General Services Administration has become the first government customer for SprintEDI, the carrier's electronic data interchange service. The GSA's federal Supply Service will use Sprint's public EDI service to exchange messages with other federal agencies as well as government suppliers.

MFS, Central Telephone hook up. Metropolitan Fiber Systems, Inc. and Central Telephone Co. of Illinois announced that they have signed an agreement to link their respective networks through fiber-optic cable.

Central Telephone said the interconnection, expected to be completed by the end of the year, will provide its customers with an alternative to AT&T, MCI Communications Corp. and Sprint Corp. service. □

Global consortium preps ODA tool kit

continued from page 25

as a separate entity, encoding the document and preparing it for network transport. The ODA Level API would allow developers to physically manipulate parts of the applications' text and graphics according to ODA's basic rules, Patton said.

In addition to the PDL Generator for readying data for a PostScript printer, the ODA Consortium's tool kit will also include a set of ODA Diagnostics developed by Siemens Nixdorf Information Systems, Inc. and a document formatter from Groupe Bull SA.

Patton said the ODA Consortium's set of APIs has attracted interest from the European Computer Manufacturers Association (ECMA), a vendor group that wields influence over standards making in Europe. "We would like ECMA to confirm [that] this particular implementation conforms to the ODA standard," he said.

Although APIs per se do not often become standards, Patton said it is certainly possible for APIs to achieve standards status. Patton said the ODA Consortium has hopes that the tool kit it will license next year will find industrywide acceptance and perhaps a place in the standards world. □

Can You Tell Who's Using Teleglobe's New V.32bis Modem?



Teleglobe's DA 3214 modem is setting the industry ablaze with a line rate of 14.4 kbps over standard phone circuits, 57.6 kbps using V.42bis compression. But there's more to the DA 3214 than speed. No other modem performs better under adverse line conditions. And the DA 3214 is backed by Teleglobe's 20 years of communications experience. Call Teleglobe today at 1 800-926-3225 ext. 3200 or fax us at 1 508-681-0660.



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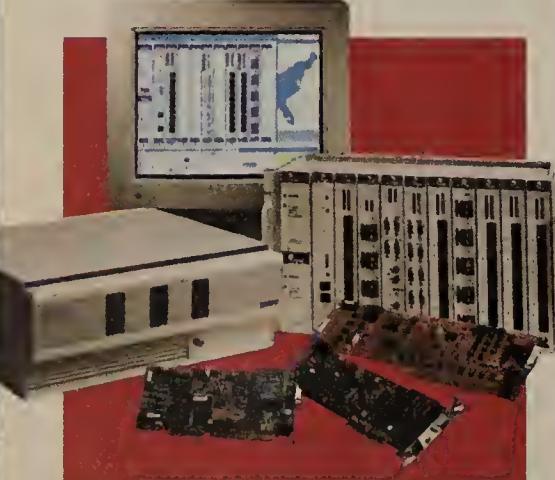
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MANAGEMENT STRATEGIES

ENTERPRISE NETWORK STRATEGIES, USER GROUPS AND MANAGING PEOPLE AND TECHNOLOGY

Worth Noting

"In the last three years, TCP/IP caught people by surprise [with its sudden popularity]. The same thing will eventually happen with OSI."

Sudhi Umarji
Principal product manager of communications and networking
HFS, Inc.
McLean, Va.

Association Watch

The Wall Street Telecommunications Association (WSTA) recently provided a \$5,000 grant to the general scholarship fund of New York City Technical College, one of the few schools in the country offering a baccalaureate degree in telecommunications.

WSTA, which is celebrating its silver anniversary this year, represents more than 110 companies from the financial industry.

The Society of Manufacturing Engineers (SME) and the Corporation for Open Systems International is jointly sponsoring "Advances in Open Systems: the Activity-based Workshop for Users" from May 11-14 in Dallas.

The seminar, which will include one day of tutorials, will focus on overcoming barriers to open systems through education, defining user requirements and publicizing relevant business cases.

In addition, vendors demonstrating distributed computing applications will be featured.

The conference fee for members is \$360 and \$440 for nonmembers.

For more information, contact SME at (800) 733-4763 □

Panning the Internet river for nuggets of information

New Internet catalog serves as treasure map.

By Skip MacAskill
Special to Network World

COLUMBUS, Ohio — What do satellite photographs of the earth, pictures of a space launch, income tax programs and the most recent grants from the National Science Foundation have in common?

All can be acquired through the Internet, and the task of discovering these nuggets of information has been made much easier by one user's effort to catalog resources on the national net.

Jerry Martin, leader of the Network Information Center at Ohio State University's Academic Computing Services here, has earned acclaim for compiling a comprehensive Internet index.

His guide, "There's Gold in Them Thar Networks," serves as a treasure map to the thousands of bits of information that are available to Internet users.

"There is so much information available on the Internet, it is almost impossible to know where things are," Martin said. "I wrote this document because I needed it. It will help newcomers bypass the research phase that most of us have [experienced] in finding

our way around the Internet network world."

The informative guide began as a series of Post-It notes containing Internet file references that Martin stuck to his terminal to assist him in tapping into specific resources.

"At some point, I realized I needed an integrated document, and after I [compiled] it, I wanted to share it with others," he said.

Wealth of information

According to Martin, the guide is a boon to researchers because it serves as a source of Internet information databases and file repositories.

Users can, for example, look up grant opportunities, science and technology information systems, libraries and much more.

Martin calls the guide "a top-level index" and designed it as a list of lists, which contain "nuggets," or highlights, from each referenced file.

The Internet is used primarily by academic and research-oriented institutions, as well as government, military and commercial groups.

(continued on page 36)

GUIDELINES

BY ERIC SCHMALL

Net managers need to hone sales skills

Network managers who want insurance against being outsourced should take some tips from their favorite salesperson.

In the purest sense, net managers are salespeople who provide communications services and support in order to meet the changing needs of their customers — the end users. Managers who have consummate sales and customer service skills will more likely engender customer loyalty and avert an outsourcing decision than network managers who lack these skills or who concentrate on developing technology at the expense of keeping their customers happy.

So what makes a good salesperson? As a net manager, you have dealt with many salespeople over the years. Consider for a moment the best salespeople you have met and reflect on the qualities that have made them so effective.

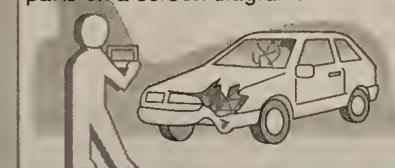
One of the first things you'll remember is that the best salespeople have a clear understanding of their product lines as well as your network and business environment. They are also honest, admitting their product's limitations without being disloyal to their firm.

(continued on page 32)

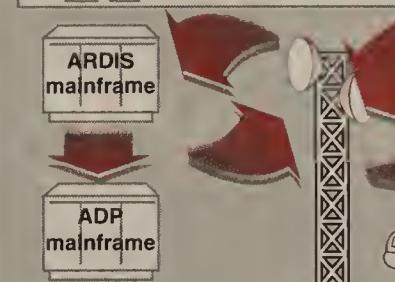
ADP cashes in on wireless technology

Wireless service offers repair estimates on the spot

1. Claims adjuster using notebook computer indicates damaged vehicle parts on a screen diagram.



2. Adjuster uploads damage information to ACS mainframe via ARDIS Co.'s wireless network.



3. Notebook computer calculates repair costs based on data downloaded from ACS' mainframe and a CD player carried by the adjuster.

SOURCE: ADP AUTOMOTIVE CLAIMS SERVICES GROUP, SAN RAMON, CALIF.

GRAPHIC BY SUSAN J. CHAMPEY

Firms use wireless to improve service

ACS rolls out offering that allows adjusters to use portable computers to settle claims on-site.

By Wayne Eckerson
Senior Editor

SAN RAMON, Calif. — Many companies with mobile field workers are employing wireless data communications services to speed response to customer calls, increase worker productivity and reduce costs.

One company hoping to cash in on the growing market for mobile data services is ADP Automotive Claims Services Group (ACS), a provider of insurance services based here and a division of the giant payroll processor, Automatic Data Processing, Inc.

ACS recently unveiled a service that enables adjusters to use a portable computer version of its mainframe-based automotive repair estimating service. Called Audapoint, the service allows adjusters to download prices and availability of car parts from ACS' mainframe in Ann Arbor, Mich., using ARDIS Co.'s nationwide wireless packet data network.

The adjusters use this data, along with other part prices contained in a portable compact disc player adjusters carry with them, to print out repair estimates for body shops on the spot (see graphic, this page).

This speeds the process of resolving automotive repair claims, improving customer service and

saving insurance companies a bundle in payments for rental cars to customers waiting for their cars to be fixed, according to Bob Albo, director of advanced product development at ACS. It also enables claims adjusters to stay in closer touch with the main office, making them more productive.

Today, most adjusters make notes about damaged parts using paper and pencil. They then tabulate estimates at their home or office using personal computers connected to ACS' mainframe and mail the estimates to body shops. Whenever a body shop disagrees with an estimate, it takes days to resolve, Albo said.

About 20 insurance companies are testing the new wireless product and one has rolled it out in production for 40 of its field representatives, Albo said.

He expects that in two or three years, half of the five million repair estimates ACS handles each year on its mainframe will be processed on portable notebook computers. ACS' customers are the nation's largest insurers, including AllState Insurance Co. and State Farms Mutual Automobile Insurance Co.

"Our whole business will be going in the direction [of wireless]

(continued on page 32)

Firms use wireless to improve service

continued from page 31

portable computing],'' Albo said.

With Audapoint, claims adjusters carry in their vehicle a 25-lb. docking unit that has ports for an Epson America, Inc. 80386-based notebook computer, a CD player, a portable printer and a Motorola, Inc. 840 C external radio packet modem.

To use Audapoint, the insurance adjuster types the make, model, year and damaged area of the vehicle into the notebook

computer. The computer then downloads from the CD a diagram of the section of the car that is damaged and shows all the parts.

The adjuster takes the notebook computer out of the docking unit and inspects the car, marking the vehicle's damaged parts on the computer screen by moving the cursor across the diagram and pressing a key.

The adjuster then establishes a wireless link to ACS' mainframe to download the availability and prices of parts from discount outlets. This information gets updated almost daily, Albo said.

More static information, such as parts prices from automobile manufacturers and standard labor charges, are kept on the CDs, which are updated monthly.

The data from the mainframe and CD are automatically loaded into an ACS estimating program, which calculates the total cost of the repair and prints it on the portable printer.

The insurance adjuster then gives the printout to the body shop. If the body shop disagrees with any part of the estimate, the adjuster can resolve the problem on the spot and adjust the estimate if necessary.

ACS chose ARDIS because it currently offers the widest geographical coverage of any wireless mobile data service, according to Albo. ARDIS currently offers service in 400 metropolitan areas in the U.S. The only drawback to this and other wireless data services is that they do not offer coverage in many rural areas where insurance companies may need to send adjusters, Albo said.

Future services

Later this year, ACS plans to offer additional services on Audapoint that let adjusters check a vehicle's background to make sure it is not stolen or that multiple claims have not been filed. The service will also inform insurance adjusters of the availability and prices of parts in salvage yards near the body shops. Data for both services will be downloaded from mainframes via ARDIS.

Albo said the price for Audapoint is about \$1,000 a month, including the monthly lease for all hardware and software as well as monthly updates of the CDs. Customers also receive a monthly bill for usage on the ARDIS network. □

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ENNE candidates are enterprise network users, vendors, and enterprise integrators. Call or write today for your nomination packet. But don't delay — the deadline for nominations is June 26, 1992.

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Net managers need to hone sales skills

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The best salespeople always try to keep abreast of your company's business needs and seek ways that their technology can be used to meet those needs. When their products aren't selected, they don't sulk or try to appeal the decision to senior management. Instead, they seek to understand what their firm can do to improve its product to make it more competitive.

Top salespeople are dependable and can be counted on to deliver high-quality products on time. They are also good at solving vexing problems, often taking extraordinary measures to provide high-quality support.

In addition, good salespeople develop trusting relationships with everyone in your company. Your technical staff trusts the judgment of these salespeople, and your chief financial officer respects their business acumen.

Unfortunately, many net managers never approach their jobs as if they were salespeople. Many manage the network function as if it was simply a regulated utility, without attempting to build partnerships with end users. They establish rigid rules designed to perpetuate their own monopoly rather than support the needs of customers. Net managers who have no concept of building partnerships with their end users are vulnerable to outsourcing.

On the contrary, managers who function like good salespeople will develop enduring and profitable relationships with end users. These managers keep up to date with developments in end users' line of business and tailor network technology to help users' meet new challenges.

In building customer loyalty through effective sales techniques, network managers will give outsourcing vendors few opportunities to infiltrate their territory. □

Schmall is a network systems manager for an insurance holding company

NOTICE TO NATURALIZED CITIZENS FROM, OR WHO HAVE RESIDED FOR A SIGNIFICANT PERIOD OF TIME IN, THE FOLLOWING COUNTRIES:

Afghanistan, Albania, Angola, East Berlin, Bulgaria, Cambodia (Kampuchea), Cuba, Czechoslovakia, Estonia, Ethiopia, German Democratic Republic (East Germany), Hungarian People's Republic (Hungary), Iran, Iraq, Democratic People's Republic of Korea (North Korea), Laos, Latvia, Libyan Arab Republic, Mongolian People's Republic (Outer Mongolia), Nicaragua, People's Republic of China, Poland, Rumania, Southern Yemen, Syria, Union of Soviet Socialist Republics, Democratic Republic of Vietnam (North Vietnam), South Vietnam, Yugoslavia, the Kurile Islands and South Sakhalin (Karafuto).

YOU MAY HAVE BEEN THE VICTIM OF UNCONSTITUTIONAL DISCRIMINATION BASED ON YOUR NATIONAL ORIGIN

If you are a naturalized United States citizen and your country of origin is included above, or you resided in one of these countries for a significant period of your life, the Department of Defense (DoD) or a DoD contractor may have unlawfully denied you a security clearance or employment, promotion, fellowship or scholarship that required a security clearance, or asked you to apply for a Limited Access Authorization, as a result of DoD's enforcement of a regulation which denied security clearances to newly naturalized United States citizens from these countries or who resided in these countries for a significant period.

The DoD and DoD contractors acted pursuant to a regulation that became effective on January 2, 1987. Although DoD rescinded the regulation on February 12, 1988, it may have been applied after that date. The United States District Court for the District of Columbia has declared the regulation unconstitutional and

permanently enjoined the DoD from enforcing it. Huynh v. Cheney, 87-3436 TFH (D.D.C. March 14, 1991).

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Panning the Internet river

continued from page 31

Users without these affiliations can access the Internet through companies such as CompuServe, Inc. for a service fee.

"A number of reference guides are available to users for specific areas of the Internet, but this is the first one that acts more as a pointer to where different types of information can be found," Martin said. "The guide

attempts to make the process of hunting down information on the Internet more manageable, which isn't an easy task because the way information is gathered changes so frequently."

For more information about the guide, which is available free of charge once Internet access is obtained, contact Martin at (614) 292-4843. □

Net provides for school's future

continued from page 19

plug in their own laptop or portable computers.

When the new building opened in January, data jacks enabling computers to be plugged in to the buildingwide net had been installed in every seat in two classrooms; every table and carrel in the library; every faculty, administrative, secretary and stu-

dent activity office; as well as the faculty lounges and student cafeterias.

When users plug in to the net, they are able to access a variety of services including electronic mail, a legal bulletin board system, the public LEXIS/NEXIS database, class notes and application software, such as word processing programs.

Additionally, it provides view access to grades and, eventually, gateway access to the Internet.

Although the network more than meets the school's current needs, the LAN was built with an eye toward supporting future imaging applications.

"At the last minute, we decided to pull a higher grade of [twisted-pair] cable," Stoudt explained. "And it's looking like the IEEE is going to approve a standard that will designate this cable for 100M bit/sec at 100 meters for data transmission. That was sort of a last minute gamble on our part, and we think it's going to pay off."

He said the school will probably need 100M bit/sec bandwidth in the near future for imaging applications. He also expects it to be less expensive to use copper.

"[Using copper] will save us money in the long run because it will delay the necessity of buying fiber-compatible equipment, which is not going to come down in cost as quickly as the copper-compatible 100M bit/sec equipment," Stoudt said.

The school has also installed fiber throughout the building, including to the desktop, in case it opts for traditional Fiber Distributed Data Interface access.

Chicago-Kent is planning to provide access to a Novell server-resident database containing images of the United Nation's Library of International Relations collection.

The U.N. library, which resides with Chicago-Kent's library on the eighth floor of the new building, holds every U.N. and European Economic Community document ever published. The school is currently in the process of scanning these documents into the database so they can be accessed by network users and library members dialing in to the net.

"The network will give users reference help and let them capture and read over the LAN or telephone lines images of primary and secondary sources in that library," Stoudt said.

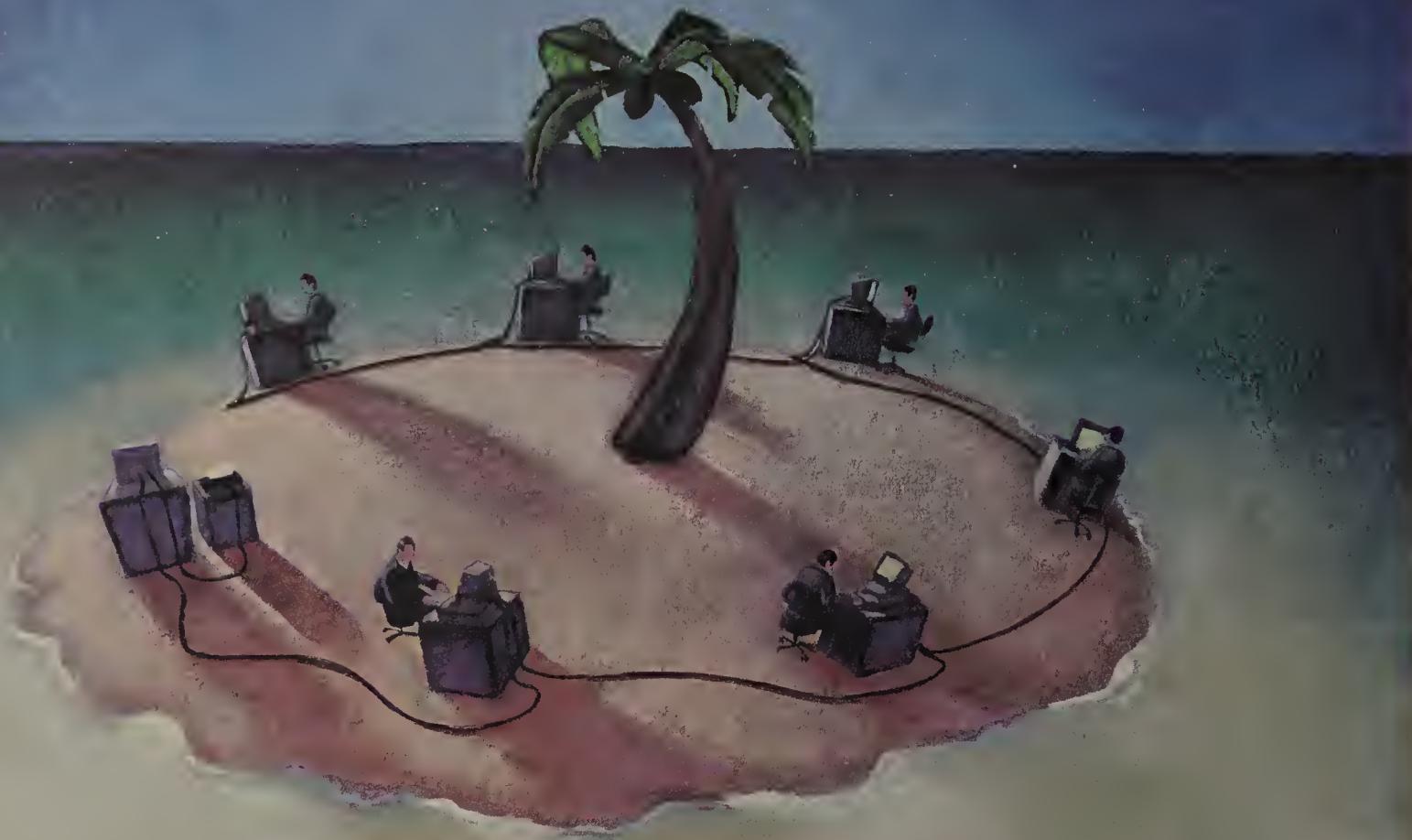
The buildingwide net is managed from a network control center on the seventh floor that uses David Systems' ExpressView Simple Network Management Protocol management system. Chicago-Kent uses a twisted-pair cable, which runs parallel with the fiber backbone, to provide a backup network management link.

"You can communicate with the hubs even if the [fiber] network is down," Stoudt said.

But the network has been 100% reliable so far.

"We moved in [this] January, and the network was up before the telephone system was," he said. "The phone system is going down today at 3 p.m. for two hours of repair, and we haven't been down yet. We're proud of that." □

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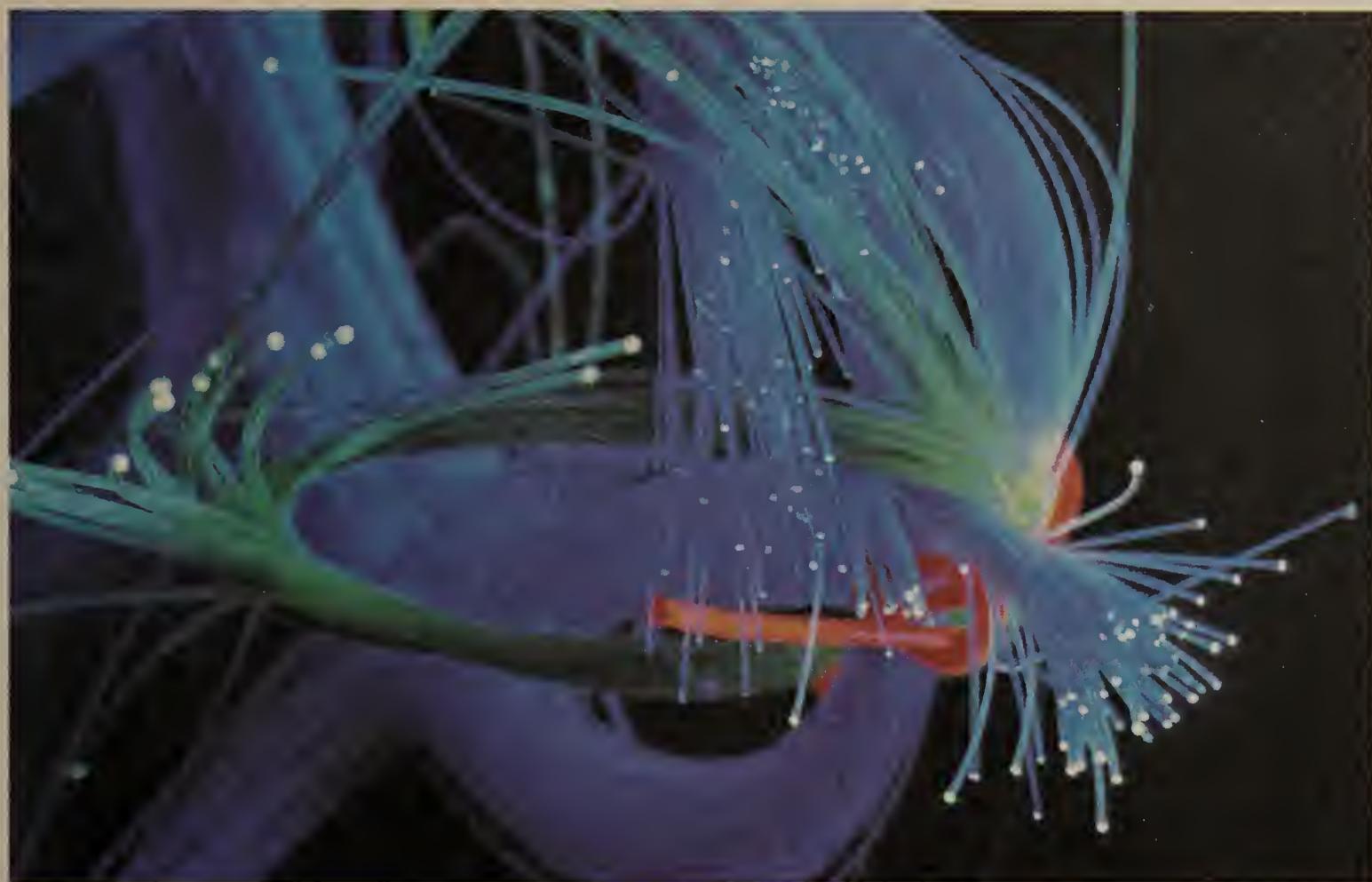
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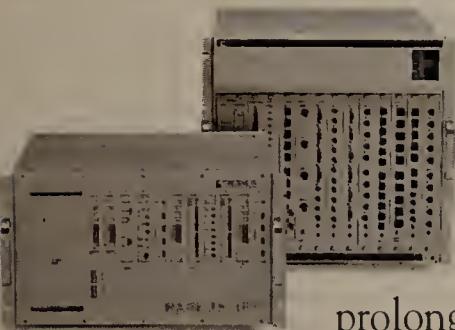


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OPINIONS

CAREER ADVANCEMENT

BY JAMES CARLINI

Uncreative managers better watch for the ax

Senior management is taking the misguided view that the functions performed by the telecommunications department can be handed off to junior staff in the MIS department. And telecommunications managers don't seem to be doing much to change that way of thinking.

It's getting easier to outsource voice services, and the MIS staff at some firms seems to be increasingly taking over telecommunications tasks. Therefore, telecommunications managers need to show senior management they can offer fresh business ideas and innovative ways to solve technical problems.

The shift from mainframe-based networks to personal computers and local-area networks has also caused a reevaluation of the relationship between MIS and telecommunications. In an attempt to accelerate their changeover of technology, these organizations are also swapping out employees.

Some politically run organizations have not kept pace with technology because new technologies threaten the status quo of those in charge. For instance, hanging on to obsolete mainframe technology has forced some organizations to

buy expensive gateways and other unnecessary linkages to provide enterprise-wide communications. But just as both hardware and software applications become obsolete, so do organizational structures and people.

Senior management is slowly coming to understand what is necessary and what is wasteful. Eventually, these dinosaur systems will be replaced along with the people that support them. Net managers that take this protectionist strategy are laying themselves open to becoming dumped once senior management figures out what they've been doing.

What's a telecommunications manager to do? Learn LAN technology? There aren't many, if any, six-figure LAN manager jobs around. For some reason, LANs, although vital to many corporate organizations, have not needed much complex management once they are installed. Learning LAN technology won't guarantee you a high-paying job; in fact, it won't even guarantee that you'll keep your job during an organizational restructuring.

Strategic planning and creative skills that focus on applying new information and telecommunications technology to business needs will still be needed, though. So network managers that want to get ahead must also carefully build networks that won't be obsoleted by the introduction of new technology.

Organizations should spare no expense in hiring or retaining creative talent that can match technology with strategic business needs. Telecommunications professionals that want to ascend to higher levels will have to augment their expertise with skills that are more managerial and entrepreneurial in nature. If those skills aren't present, the best you can hope for is a position as a "network janitor." □

Carlini is president of Carlini & Associates, Inc., a management consulting firm in Hinsdale, Ill. He also lectures on information technology at Northwestern University in Evanston, Ill.

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EDITORIAL

Without applications, what good is the network?

Here's an open question to software vendors: Where are the real network applications?

The sad truth is there are very few applications that really take advantage of the powerful networks users have today. Few of the major software vendors are offering innovative products designed from the ground up to leverage intelligent, high-capacity network facilities.

The opportunity is vast. Users are eager for new tools that will help them break down organizational boundaries, share ideas more easily and streamline operations. They're looking for the productivity gains information technology has promised but not always delivered.

Sure, the big vendors will tell you they're working to improve

the communications capabilities of their applications by providing links to more databases and other applications. Or, they may be providing personal computer front ends to applications on larger systems.

There are only a handful of net applications that users can buy that break new ground by helping people work together more efficiently and creatively. Much of what is available has come from such start-ups as PeopleSoft, Inc. or Reach Software Corp., which are not saddled with the chore of catering to their installed customer base.

One major player that has pushed the network applications envelope is Lotus Development Corp., whose Notes software has garnered a great deal of acclaim.

Rivals are quick to pooh-pooh Notes, saying the software is hardly a mass market success and pointing out its technical limitations. Indeed, Lotus is only now starting to make a profit from Notes sales after years of development.

But the point is that Notes has stolen the spotlight because it is not business as usual in the applications arena. It offers users a new approach to working together, and big companies have bought into that

OPINIONS

MACROSCOPE

BY JAMES KOBIELUS

Net managers must design customized voice applications

Voice processing systems speed decision making, make people more accessible and facilitate message exchange only if they are running well-developed applications.

While telecommunications managers are responsible for building these applications, few have begun to develop the same kind of structured approach to planning, identifying and building applications that exists on the data side.

However, the task is not difficult if telecommunications managers follow a few simple steps.

They should consider how each new voice processing application will reflect the corporate image by including human resources, public relations and marketing personnel on the development team. This is important because the first, and sometimes the only, voice that callers hear is often a recorded one, so that voice needs to leave callers with a positive impression.

Also, greetings and announcements must be standardized. These audio signatures are as important as logos, letterheads and product packaging.

Where possible, corporate greetings and announcements should be recorded by a single voice or with a single vocal style, reinforcing the impression of unity within the firm. Greetings on personal voice mailboxes should generally conform to standard scripts.

A key issue is whether to provide callers with direct access to operators. A company might send customers to automated attendants and voice mail systems only at their request. The firm might also require that all voice processing applications enable the caller to dial zero to return to an operator at any time. Another option would be to provide operators with the ability to monitor a caller's voice process-

ing session and intervene to provide advice or assistance.

In addition, firms should establish standards for the design and content of voice processing application menu structures, covering items such as the maximum number of menu levels and the number of options per level. There should also be standard escape and loop-back paths, as well as syntax and word choices to aid callers in selecting options.

These standards will help determine whether callers consider voice processing a useful tool or a forbidding dungeon into which they are unceremoniously dumped.

Telecommunications managers should also recognize that voice processing systems are, or could be, their company's primary transaction support platforms. The applications they run are generally more accessible and user-friendly than data applications because more people are familiar with telephones than with the keyboard of a data terminal.

Additionally, telecommunications managers should focus on applications that support person-to-person, person-to-function and person-to-application transactions.

Voice mail systems coexist in many companies alongside other interpersonal message transfer systems, such as electronic mail, facsimile, telex and radio paging. Developers should consider integrating these disparate technologies into a single person-to-person messaging utility.

Users should be notified by voice processing systems when they have new messages for those other systems. At the same time, callers should be able to use voice processing to generate messages in E-mail, fax and other media for those who don't respond to their voice mail.

Departmental mailboxes, audiotex bulletin boards, system distribution lists and other voice processing services support person-to-function applications by enabling callers to interact with a department that fulfills a specific function — such as marketing or customer service — without dealing with individuals.

Telecommunications managers should consider developing applications that support the same corporate functions — sales, marketing, manufacturing and customer service — that data processing applications already support. Voice processing systems will be accepted as a key corporate technology when each department can point to both voice and data applications that have been customized to their needs.

Interactive voice response systems support person-to-application links that allow users to query and update existing computer-based on-line transaction processing (OLTP) applications through telephone keypad commands or spoken input. Developers must survey corporate OLTP databases to determine which ones will be made accessible to callers.

Telecommunications managers who fail to follow these suggestions when establishing a coherent approach to developing voice processing applications will sooner or later have the responsibility taken away from them. They should rise to the voice processing challenge or risk seeing their data counterparts pick up the slack. □

Kobielus, a contributing editor to Network World, is a telecommunications analyst with Fairfax, Va.-based Network Management, Inc., one of the largest local- and wide-area network systems integrators in the U.S.

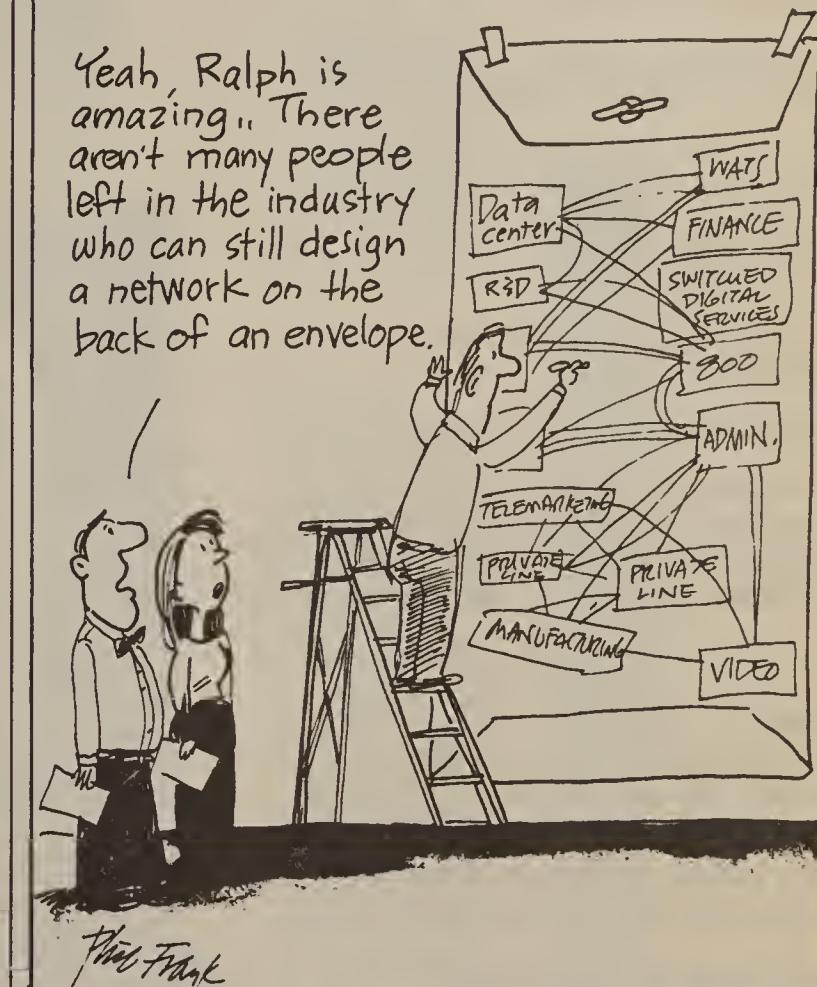
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TELETOONS

BY FRANK AND TROISE

Yeah, Ralph is amazing.. There aren't many people left in the industry who can still design a network on the back of an envelope.



LETTERS

Taking those first steps

Your recent article, "National ISDN 1 raises new issues for users, industry" (NW, March 9), was even-handed and stated the issues well.

However, I am concerned that my quoted comments failed to make a clear distinction between National ISDN, which is the process, and National ISDN 1, which is the first implementation phase of that process.

National ISDN is the best and most encouraging news for Integrated Services Digital Networks in the past few years. It is National ISDN 1, the first step, that is painful, and the article cogently spelled out some of the key sore spots.

National ISDN is essential and fundamental to the successful deployment of Basic Rate Interface in North America. Bell Communications Research has played a leading role in that effort, clearly investing a tremendous amount of time and technical talent.

The switch manufacturers' commitment to National ISDN,

as well as the regional Bell holding companies' commitment to deploy ISDN, hold the promise that a well-integrated ISDN public network will emerge in the next few years — assuming the long-distance carriers do their part, too.

Bellcore's National ISDN CPE Guidelines Workshops and related work by the North American ISDN Users' Forum (NIUF) are giving both users and customer premises equipment manufacturers a clear opportunity to contribute to National ISDN.

Clearly, customer premises (continued on page 50)

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<input type="checkbox"/> Within 60 days	146 147 148 149 150 151 152 153 154 155 156 157 158 159 160
<input type="checkbox"/> Within six months	161 162 163 164 165 166 167 168 169 170 171 172 173 174 175
<input type="checkbox"/> Within one year	

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3. Scope of purchase responsibility

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4. Purchase influence/number of sites

<input type="checkbox"/> Within 60 days	9 □ One site	11 □ 10-20 sites
<input type="checkbox"/> Within six months	10 □ 2-9 sites	12 □ 21+ sites.
<input type="checkbox"/> Within one year		

<input type="checkbox"/> Within 60 days	101 102 103 104 105 106 107 108 109 110 111 112 113 114 115
<input type="checkbox"/> Within six months	116 117 118 119 120 121 122 123 124 125 126 127 128 129 130
<input type="checkbox"/> Within one year	131 132 133 134 135 136 137 138 139 140 141 142 143 144 145

<input type="checkbox"/> Within 60 days	146 147 148 149 150 151 152 153 154 155 156 157 158 159 160
<input type="checkbox"/> Within six months	161 162 163 164 165 166 167 168 169 170 171 172 173 174 175
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Groupware vendors face formidable obstacles

Race to bring technology to business mainstream is being slowed by user disinterest, technical hurdles.

CONTINUED FROM PAGE 1

Vendors, too, are responsible for the lack of broad user acceptance, primarily because they still must resolve technology issues that will enable their products to work in harmony with the installed base of applications. To their credit, vendors are working to resolve these shortcomings.

Several new trends are now emerging — including the integration of network services such as imaging and videoconferencing — into groupware packages. The introduction of these high-demand network services into groupware offerings could help boost demand for the otherwise flagging technology.

The upside of groupware

The most accepted definition of groupware today describes an application that allows groups of individuals to work on common projects in a shared environment.

Groupware products are capable of coordinating a wide array of tasks. A manager for a manufacturing firm, for instance, can schedule and conduct a meeting with other workers via groupware. The technology makes it



possible to schedule all participants, remind them of the meeting time and date, collect their input for the agenda via electronic mail or facsimile, and allow them to review all necessary documents prior to the meeting.

The manager can conduct the meeting via groupware by using a local- and wide-area service, such as Integrated Services Digital Network or frame relay, to link remote users. Once tied into the on-line conference, participants communicate using messaging.

Some products also support

audio and videoconferencing as needed, while others automatically note each participant's comments and store them for future reference. High-resolution desktop video units scan and store detailed images of product models and diagrams for each participant to view.

After the meeting, groupware enables users to write reports and route them to each participant for input, while some programs incorporate each participant's comments automatically, noting who suggested what and when.

Fully edited with annotated video and graphic images, the final document can be routed to company officials in cities worldwide for their review.

Groupware inhibitors

Yet for all its promise and potential, most industry watchers agree that the groupware market hasn't taken off as expected.

"I'm sure Lotus [Development Corp.] is pleased with its market penetration, but it expected Notes to be to groupware what

(continued on page 49)

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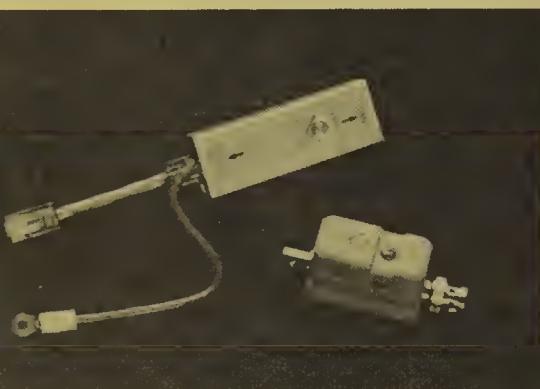
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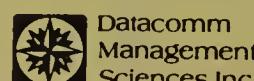
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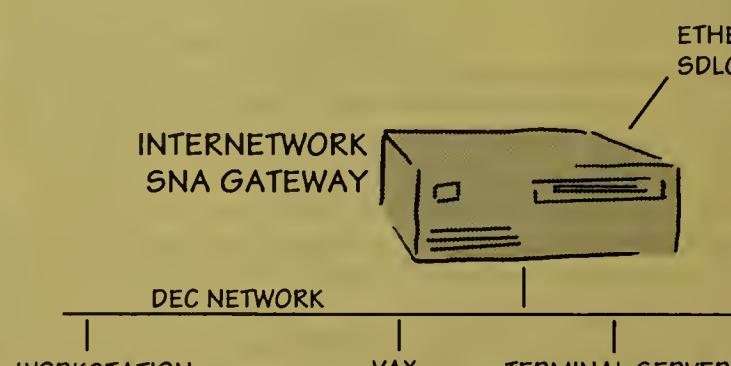
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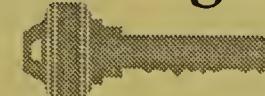


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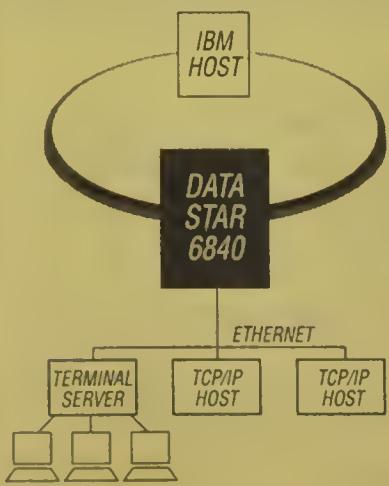


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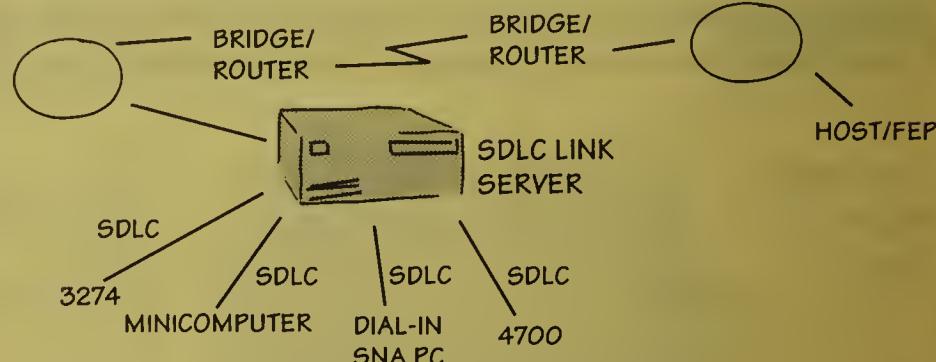
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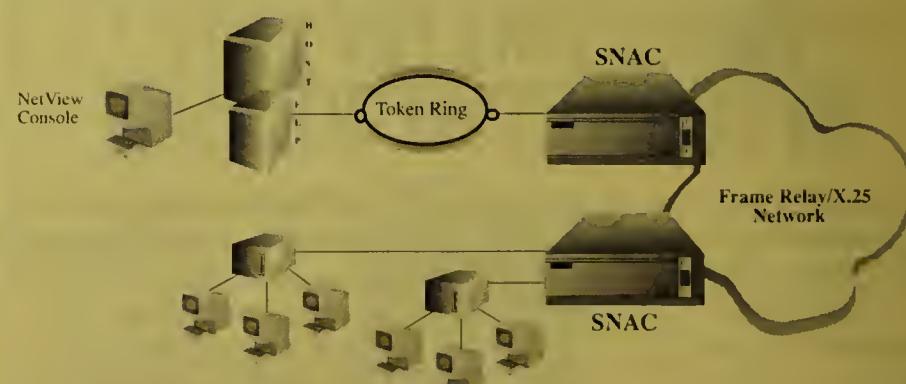
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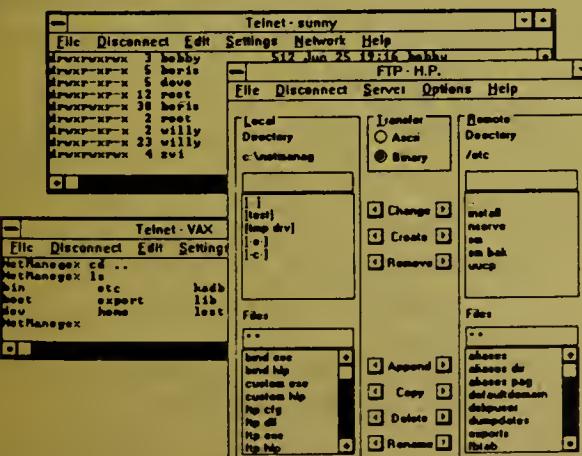
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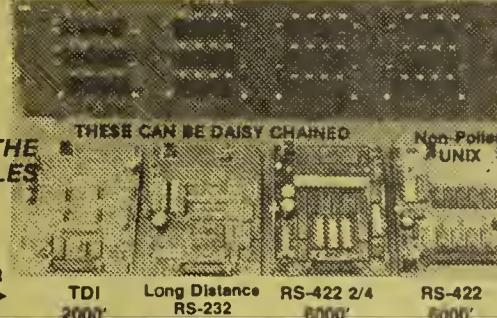


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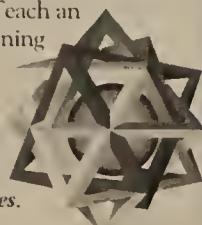
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May 11 (Apr 29 Close); Topic: Internetworking; Buyer's Guide: Bridges

May 18 (May 6 Close); Topic: Special Applications; Annual critical issues facing users survey; GSPD: Open network management platforms; Show Distribution: ICA & Interop East; Lead Service

May 25 (May 13 Close); Topic: WAN; Interexchange carrier billing options

June 1 (May 20 Close); Topic: Internetworking; Buyer's Guide: Hubs; Lead Service

June 8 (May 27 Close); Topic: Applications; Imaging networks

June 15 (June 3 Close); Topic: WAN; Buyer's Guide: Digital private line services, Wireless communications; Show Distribution: Supercomm; Lead Service

June 22 (June 10 Close); Topic: LAN; Document management and retrieval; Show Distribution: PC Expo; Harvey Study

June 29 (June 17 Close); Topic: WAN/Internetworking; Buyer's Guide: T-carrier multiplexers; Show Distribution: DCI Client Server World

July 6 (June 24 Close); Topic: Internetworking; Apple and IBM: One year later; Lead Service

July 13 (July 1 Close); Topic: LAN; Buyer's Guide: Disaster recovery and backup

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1-2-3 was to spreadsheets, and that clearly has not happened yet," MIT's Bullen says.

Ann Palermo, a groupware analyst at International Data Corp. (IDC) in Framingham, Mass., says it's unfair to claim that groupware sales have fallen far short of expectations. "I think we're just at the early stages of the market," she says. "I think there's going to be phenomenal growth before 1995."

IDC predicts that the market for groupware and local-area network-based integrated office systems will grow at 50% annually over the five-year period from 1990, which translates into a \$320 million market by 1995.

But in order for the groupware market to pick up, Palermo says, vendors "need to put some dollars behind this effort to educate the market on what work group applications are, how they can benefit users [and] how to implement them."

She predicts that the eventual entrance of personal computer software vendors, such as Borland International, Inc. and Microsoft Corp., will help legitimize the technology. "You're going to see IBM and DEC get into this in a big way and maybe even see the reemergence of companies like Wang [Laboratories, Inc.] as they stake their claim in group computing," Palermo says.

One reason groupware has lagged is most end users still aren't sure what groupware is or what it can or can't do for them. Because they are unaware of the productivity gains groupware can bring to their organizations, end users hesitate to invest in the technology.

"Companies are leaving too much in the hands of the end user," MIT's Bullen says. "Managers too often say this piece of software is going to solve all their problems, and that's just ridiculous."

Bullen maintains that users first need to examine a company's business processes before employing groupware products. Once a company decides that a process is acceptable and groupware can automate certain tasks, a specialist should be given the charge of implementation and helping users apply the tool to their operations.

"Too often that's left to an MIS-type who doesn't understand the end users' real needs," Bullen says.

The acceptance of groupware is also being hampered by other factors, such as a lack of cross-platform hardware support on major offerings, a lack of interfaces to common business applications and a high learning curve that dissuades some users from employing groupware.

Lack of hardware support

Beyond E-mail programs such as Microsoft's Microsoft Mail and Lotus' cc:Mail, there is a dearth of major groupware packages available across a wide range of popular hardware platforms, including Apple Computer, Inc.'s Macintosh and IBM PCs.

In fact, most development efforts underway seem to be focusing on retooling existing packages to create versions for different platforms. In other words, vendors selling Macintosh-based programs are working on PC versions, and PC-compatible vendors are focusing efforts on Macintosh versions.

"The lack of cross-platform applications was a big factor in our corporate stan-

dardization on the Macintosh," says Scott Joy, project manager for Liberty Mutual Insurance Co. in Portsmouth, N.H. He points out that the Macintosh's built-in networking was one of the main reasons why his company chose it as the standard hardware platform for groupware.

Liberty Mutual is a major user of ON Technology, Inc.'s groupware products, including its Instant Update conferencing and Meeting Maker scheduling programs.

The firm's Loss Prevention department uses groupware to hold on-line meetings, support file rotation of claims and other

documents passing among employees, and schedule client meetings.

Groupware vendors are also slow in getting hardware-specific versions of their products out to users. In mid-1991, many leading groupware firms professed to be working on versions of their products for popular platforms that they did not support. To date, none have appeared. Lotus is expected to introduce a Macintosh-capable edition of its popular Notes software this year, while other vendors will only say they have versions under development.

Ideally, a groupware package should be

able to work across various platforms. This is especially important to end users on enterprise networks, where multiple hardware devices are networked to support cross-platform applications and information flow. For now, users hoping for such capability will have to keep waiting.

Lack of interfaces

Another factor contributing to the soft acceptance of groupware is the lack of interfaces to established business programs. In other words, vendors need to offer bet-

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ties between their groupware products and popular business applications such as word processing and spreadsheet programs.

This will enable users to work in their familiar applications environments in order to modify a spreadsheet or text file and use groupware to let other meeting participants simultaneously view and edit the same document in discussion mode.

"Users prefer to use their own applications packages," explains a northern California governmental agency coordinator who requested anonymity.

Most of the more sophisticated groupware packages, including meeting and conferencing products such as Group Technologies, Inc.'s Aspects, have some built-in word processing capabilities.

Also, many allow the importation of files created with other word processors. But none, to our knowledge, allow the use of these other word processors within the groupware application itself. Exceptions are remote control applications such as Farallon Computing, Inc.'s Timbuktu and Microcom, Inc.'s Carbon Copy.

Development of interfaces that use popular business application programs such as WordPerfect Corp.'s WordPerfect or 1-2-3 would greatly enhance the value and, therefore, the use of groupware products.

In fact, a new term is being bandied about the industry to describe software that enables or improves interprogram communications — middleware.

Middleware, which is just emerging in the commercial market, uses protocol translation to provide the interface between a network and an application or between applications. Within groupware, it could be used to resolve differences between groupware applications and other business programs.

Without middleware's flexibility, a groupware package is really of limited use as specialized communications software for specific applications and, therefore, applicable to fewer users.

"None of this generation of groupware applications do enough to leverage the customers' investment in existing applications," says T. Reid Lewis, president of Group Technologies. "Customers are demanding groupware that does [that]. Translation facilities are a good start, but a seamless integration is necessary."

High learning curve

Despite the promise that groupware will make it easier for firms to coordinate certain business tasks, early users report that

groupware packages are too complex for the average user to easily learn and use.

Many packages require hours of training in order for users to get up to speed on even the most rudimentary tasks.

Users mostly blame a lack of intuitive interfaces for the lengthy learning curve.

"We have made the user interface a condition of sale," says Liberty Mutual's Joy. However, there has been an improvement in groupware interfaces, he adds.

Still, MIT's Bullen thinks there's room for further improvement. "A lot of user interfaces



are just not that good," she says. "They're not designed for progressive learning so a user can recall how to use features they learned six months earlier."

Jim Donovan, manager of concept systems for Procter & Gamble Co., extensively tested groupware products before deciding to use Collaborative Technologies Corp.'s VisionQuest meeting and group decision support software late last year for on-line conferencing.

"[The other user interfaces] didn't seem nearly as friendly as VisionQuest," Donovan says. Complexity of use and a lack of easily understood user interfaces were common among products, he recalls, noting that competing vendors may have improved their interfaces and ease of use since then.

While user interface issues are one factor contributing to groupware complexity, some analysts contend the products are so complicated that vendors suggest users establish extensive training programs — a notion that contradicts the purpose of groupware, which is to simplify work group procedures.

Groupware products should mimic or at least easily fit into established working procedures. Most companies have established certain work flows and procedures because they're effective. Rather than redefine the way a group works together, the ideal groupware package should be adapted to existing situations.

"The technology should not

get in the way," says Doug Drumheller, manager of process information technology at Westinghouse Electric Corp.'s Productivity and Quality Center in Pittsburgh.

Drumheller's group chose VisionQuest to facilitate on-line meetings, including on-line discussions, messaging, document creation and editing, because it fit well with established company work flows and procedures for meetings.

"We investigated the [competing products] carefully and found that [VisionQuest] would fit into our company's way of doing things [by] using our existing tools," he explains.

Potential users must be taught what groupware can do before they can see ways in which the technology can be used. This education process is expensive and time-consuming for users and vendors, and it results in more expensive products and few users initially.

Emerging trends

Despite the groupware limitations today, pioneering users are beginning to add a new twist to the use of the technology. Some users, such as the National Aeronautics and Space Administration in Houston, are using some of the higher end groupware products as the basis for an integrated set of office applications.

NASA has been working on a desktop conferencing package for the past few months that uses Aspects' communications and editing capabilities to integrate other office applications.

The end result is a cohesive set of office applications that use Aspects to coordinate files with users across the organization. The final suite of applications will support spreadsheets and conferencing as well as video, voice and data traffic.

NASA plans to use the product in-house as a comprehensive groupware tool but is considering producing a commercial version, as well.

Other users and developers are building applications based on the popular Notes groupware program. Notes is perhaps the most sophisticated of the groupware products available today. It stores information generated by users in databases located on multiple servers across an enterprise.

The program's functions include a distributed document management system, E-mail, user directories and address books, and a word processor with basic capabilities.

One Notes user, the Commercial Imaging Group at Eastman Kodak Co. in Rochester, N.Y., is developing add-on software for Notes that will provide a store-

and-forward image capability, enabling users to support digitized image files.

Initially based on ongoing Eastman Kodak in-house research and development, the new product — dubbed Image-enabling Notes — will be marketed by Lotus as an adjunct to the base Notes product.

Eastman Kodak is also developing imaging capabilities for Novell, Inc.'s NetWare, which will bring image networking groupware to PC LANs.

The trend toward integrating more capabilities into groupware won't stop with images sent over a LAN. The combination of cross-platform groupware and integrated applications would provide seamless links with specific applications as needed, without incorporating them into the groupware itself.

Education is key

Groupware has great promise but is mired in a situation similar to that suffered by ISDN several

years ago. It is a tremendously powerful concept limited by not only the resources available to those developing and selling it, but also the understanding and application of those buying it.

Once the vendors really start to deliver groupware products that resolve current limitations and users educate their employees on how the technology can help them, groupware will have its day.

"Education is the key," Bullen says. "You can't expect to give someone a tool they don't know how to use and see benefits. Once users become educated about groupware, you'll see a real change in the way people work." □

Guptill is an associate with TeleChoice, Inc., a Montclair, N.J., consultancy specializing in strategic planning and analysis of intelligent networks, services and applications. He can be reached at (201) 746-0200.

Letters

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equipment manufacturers and, even more so, users, need to be more involved. The NIUF and local grass roots organizations, such as the California ISDN Users Group, enable you to do just that.

One crucial thing that customer premises equipment manufacturers can do immediately is encourage their customers to become involved in deployment initiatives such as the NIUF's Transcontinental ISDN Project (TRIP) '92. The Corporation for Open Systems International (COS) and TRIP '92 offer users the opportunity to profile their ISDN applications and connect to a permanent transcontinental ISDN network.

If you want to get involved in the NIUF and TRIP '92, please call Dawn Hoffman at (301) 975-2937. To become involved in the COS effort, call Leslie Fraser at (703) 883-2748. In addition, California users can call Stan Kluz, chairman of the California ISDN Users Group, at (510) 423-7757.

Lauren May
Director of marketing
Telenetworks, Inc.
Petaluma, Calif.

Teleos active in ISDN

Your recent article "National ISDN 1 raises new issues for users, industry" (NW, March 9) failed to list Teleos Communications, Inc. as a vendor promising to deliver National ISDN 1-compliant customer premises equipment by this fall.

Perhaps this list was not meant to be all-inclusive. Even

so, Teleos has been more active than most, if not all, the vendors listed in your chart.

Teleos made a clear commitment more than a year ago to support National ISDN 1, while most vendors mentioned in your story have only recently committed to doing so. In fact, compliance requirements are already under development for Teleos' net adapter product line and will be completed early in the third quarter.

No other customer premises equipment vendor is likely to be compliant within that time frame.

Therefore, Teleos will be the first vendor to provide users with the ability to attach to National ISDN 1-compliant switching devices without concern over interoperability issues.

As you know, National ISDN 1 is an outgrowth of the North American ISDN Users' Forum, of which Teleos has been a member since the forum's inception in 1988.

We have contributed two chairmen to the forum's Application Software Interface Group. The specifications published by this group represent one of the major accomplishments of the forum to date.

We will continue our high level of participation in the forum by continuing to chair the Application Software Interface Group and participating in Transcontinental ISDN Project '92, an Integrated Services Digital Network project demonstrating ISDN technology.

Anne Gitlow
Director of corporate communications
Teleos Communications, Inc.
Eatontown, N.J.

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Cameo intros Ethernet hubs

continued from page 2

[Inc.] price."

The UltraHub 5000 is a 12-slot chassis based on what the company calls its QuadChannel architecture — four Ethernet channels operating at 10M bit/sec. This enables the hub to support four distinct Ethernets. "We went Chipcom's TriChannel Architecture one better," Brind said.

The chassis can also accommodate a second QuadChannel backplane, which is still under development, that will support both token-ring and Fiber Distributed Data Interface traffic. That backplane is expected to be available by the third or fourth quarter.

Cameo will provide eight- and 12-port Ethernet modules, making it possible to configure the hub with a maximum of 132 ports per hub. Different modules are available to support different Ethernet wiring schemes.

Each module is assigned to one of the backplane's four segments, and using UltraView, each module can be switched via software to any other segment to accommodate for heavy network traffic conditions, Brind said.

Modules have port status LEDs

and are equipped with a display that shows the backplane segment to which they are attached. The hub also has a system control module that provides the link to UltraView.

The device has a hot-swapping feature that enables users to remove and replace cards without affecting other modules. In addition, each card contains battery-powered random-access memory that holds configuration information so the system can be restarted quickly if power is lost.

The UltraHub 5000 can be managed locally or remotely. Local management is accomplished through an inband connection via any network port. Remote management is achieved using a port on the system controller module.

Available in May, the UltraHub 5000 is priced from \$5,000 for an eight-port configuration to \$19,500 for a 132-port configuration.

The lower end hub Cameo is expected to unveil is the UltraHub 1000, which comes in four versions.

The Model AH1020 is a 12-port 10Base-T unit that is fully SNMP manageable. The Model AH1010 is a 12-port SNMP-manageable hub that acts as a slave to the Model AH1020, meaning it

must be linked to an AH1020 if it is to be managed by UltraView. The Model AH1000 is an unmanaged 12-port unit, and the Model AH1030 is a remote self-learning bridge that supports the Spanning Tree Protocol.

The UltraHub 1000s can be linked or used separately, Brind said. Even when used separately, they can be managed by UltraView because the management connections are out-of-band. As many as five UltraHub 1000s can

be linked to support a single Ethernet.

Also available in May, the UltraHub 1000 ranges in price from about \$70 per unmanaged port to \$104 per managed port, Brind said. Actual unit pricing was unavailable at press time.

UltraView, Cameo's Windows-based SNMP management system, provides a graphical interface for monitoring hub networks.

It collects statistical and ana-

lytical information at user-defined intervals and enables users to set thresholds and trap events, such as card failures, on the net. It also enables users at a central console to perform module switching via software on individual UltraHub 5000s. This lets users perform load sharing across the hub's four Ethernet channels, Brind said.

UltraView will also be available in May and is priced at \$1,995. □

MCI studies FTS 2000 pricing

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point out that it has a tariff that could save the government 20% over FTS 2000 rates. Indeed, Leone said the point of the study was to show if there are readily available service alternatives that are cheaper.

"I don't see any reason to scrap FTS 2000," Leone said, "but there does not now exist a process to assure that federal telecommunications users receive the best available price on a continuous basis."

Leone acknowledged that trying to determine which customers are getting the best deal is

tricky. "You have to be careful," he said. "An apples-to-apples comparison is extra difficult because the government dwarfs other customers."

Both AT&T and Sprint hit this theme, claiming that the MCI study was flawed and unfair.

"The MCI 'study' is a self-serving attempt to undermine the FTS 2000 contract, which MCI — the highest priced bidder — already failed to win," said Sprint in a prepared statement.

AT&T was equally blunt. "This so-called study is destructive in intent, seeking to undermine lawfully awarded competitive public contracts through the use of false and distorted information," said Richard Lombardi, vice-president

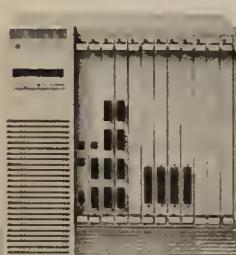
of AT&T Business Communications Services for Federal Systems.

AT&T said the study made highly selective comparisons — Leone only compared FTS 2000 rates to two deals, one Tariff 12 and Congress' Tariff 16.

Prices do vary significantly among Tariff 12 options, but Leone said Option 72 — a midsize custom deal worth \$15 million annually — was the best comparison. The largest Tariff 12 deal is worth \$60 million annually.

AT&T also pointed out, and Leone confirmed, that his study did not compare FTS 2000 rates to MCI's nor did it use Sprint's custom network deals as a comparison. □

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DEC may open mgmt. system

continued from page 2

non-DEC Management Information Base (MIB) extensions such as the Remote Monitoring MIB. Version 1.2 also supports the packet internet groper (PING) protocol for polling TCP/IP devices to determine such things as whether they are on-line.

Also, SNMP support is now bundled into DECmcc Director Version 1.2 instead of being offered as a separate option.

The Ultrix version of DECmcc Director is intended to allow users to choose a non-VMS management platform.

"This is part of our effort to become platform-independent," said Dennis Biedrzycki, product marketing manager for DEC's Software Products Group.

The Ultrix version will also run on Reduced Instruction Set Computing hardware for enhanced performance.

DEC said DECmcc Director will support the Unix System V, Release 4 and DEC OSF/1 operating systems later this year, which could increase its market penetration.

The Ultrix and VMS versions cannot exchange management

data, but Biedrzycki said that capability is under development.

Version 1.2 had been expected ("DEC preps new version of net mgmt. system for Unix," NW, March 9). Some of its capabilities, such as the event notification feature, were demonstrated publicly late last year.

Event notification is a window on the DECmcc Director's graphical interface. It allows network managers to selectively filter alarms based on their severity and provides information on the events that caused the alarm.

Meanwhile, the new MIB extensions provide management information on products from Banyan Systems, Inc., Hewlett-Packard Co., Microsoft Corp., Sun Microsystems, Inc., Vitalink Communications Corp. and others. Added to those already supported, DEC said DECmcc Director now supports 30 DEC and non-DEC MIB extensions.

Other SNMP additions include the ability to calculate and compile statistics of TCP/IP node use and provide step-by-step procedures to help fix common TCP/IP networking problems.

On the Unix system management front, DEC unveiled an application that runs with Version 1.2 for Ultrix. DECmcc Unix Dis-

tributed Management (UDM) detects faults in networked Ultrix and SunOS systems and provides configuration and performance monitoring and reporting. UDM also detects and describes the severity of alarms, installs software from servers to remote nodes and manages remote disk backups.

DEC also brought out DECinspect Compliance Manager for Ultrix and SunOS Version 2.2. The two new applications, which must run on every Ultrix and SunOS system to be managed, check for compliance to security parameters defined by the user and let system managers remotely bring noncompliant machines back to the fold.

Compliance reports are sent to a VMS system running DEC's DECinspect Security Reporting Facility Version 2.0, a new version of an application that compiles security analysis information on VMS, and now Ultrix and SunOS nodes.

Users say the new version of DECmcc Director will allow the system to better monitor their multivendor environments.

Phil Demar, network analyst at the Fermi National Accelerator Laboratory in Batavia, Ill., said absence of the SNMP extensions in Version 1.2 of DECmcc Direc-

tor "would clearly discount DEC from being a player" in Fermi's selection of a single, centralized network management station.

DECmcc Director Version 1.2 costs \$1,178. It will be available in June. UDM Version 1.2 will be

available in Europe in July and outside of Europe later in the year. Pricing was not disclosed.

DECinspect Compliance Manager Version 2.2 for Ultrix and SunOS cost \$1,100 per system. They will be available in June. □

Groups discuss IS approach

continued from page 4

One thing that could help standards setting would be the development of a common vision, said Irwin Dorros, executive vice-president for technical services at Bell Communications Research, a regional Bell holding company division. The Japanese and Europeans have national visions, which help them achieve global objectives, he added.

The situation is different here, though.

"We don't have a vision [for telecommunications] in the U.S. We don't even have a forum for talking about a vision," Dorros said.

In order to boost standards-making efforts, attendees at the three-day ATSS meeting voted to proceed with several items. They agreed to formally ask CITEL to form a consultative group in or-

der to help coordinate standards efforts throughout the region.

The consultative group, which would probably be administered by CITEL's Permanent Technical Committee-1, would help the Americas reach a consensus on policy and technical issues central to standards setting.

More immediately, ATSS attendees agreed to form a joint management team within three months to work on fostering cooperation and uniformity among standards bodies.

One project will be to develop a common model for developing standards from the initial idea of drafting documents to the testing and issuance of standards. Members agreed that getting everyone on the same schedule will help speed standards efforts and produce a more uniform standards process.

ATSS is scheduled to meet again in November 1993 in Brazil. □

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BT unit to boost frame relay service

continued from page 1

its packet switches to support higher speeds, said the source, adding that the carrier will also announce plans to offer its Global Network Services (GNS), which include messaging, electronic data interchange and protocol conversion services around the world.

"The critical need to offer higher port speeds was the driving factor behind [BT North America's] decision to install the

StrataCom boxes in its network," the source said. "It found that upgrading its own switch to support more access speeds wouldn't make sense."

BT North America would neither confirm nor deny the information. StrataCom also declined to comment.

ExpressLane, widely available in the U.S., is priced at a flat rate of \$2,100 per month and includes a frame relay-capable bridge or router and software, dedicated port access, a 56K or 64K bit/sec access line and unlimited frame transmission.

BT North America said it has about six

frame relay customers. The source said BT North America has lost user contracts because it only offers low-speed port access.

BT North America plans to conduct extensive beta tests, scheduled for June, before making service from the StrataCom platform available, the source said. If testing goes well, BT North America will begin using the StrataCom IPX overlay network to support frame relay service in October.

The overlay network will consist of 15 IPXs in the U.S., 10 in Europe and four in the Asia-Pacific region, putting ExpressLane among the leaders in terms of global

reach. So far, only Infonet Services Corp. and Cable & Wireless North America, Inc. have announced plans for widespread international deployment.

Information on which countries BT North America will serve was not available.

The company is joining a growing list of carriers choosing the StrataCom IPX to support frame relay offerings. WilTel and CompuServe, Inc. already use the IPX, and AT&T will begin doing so in the next few months.

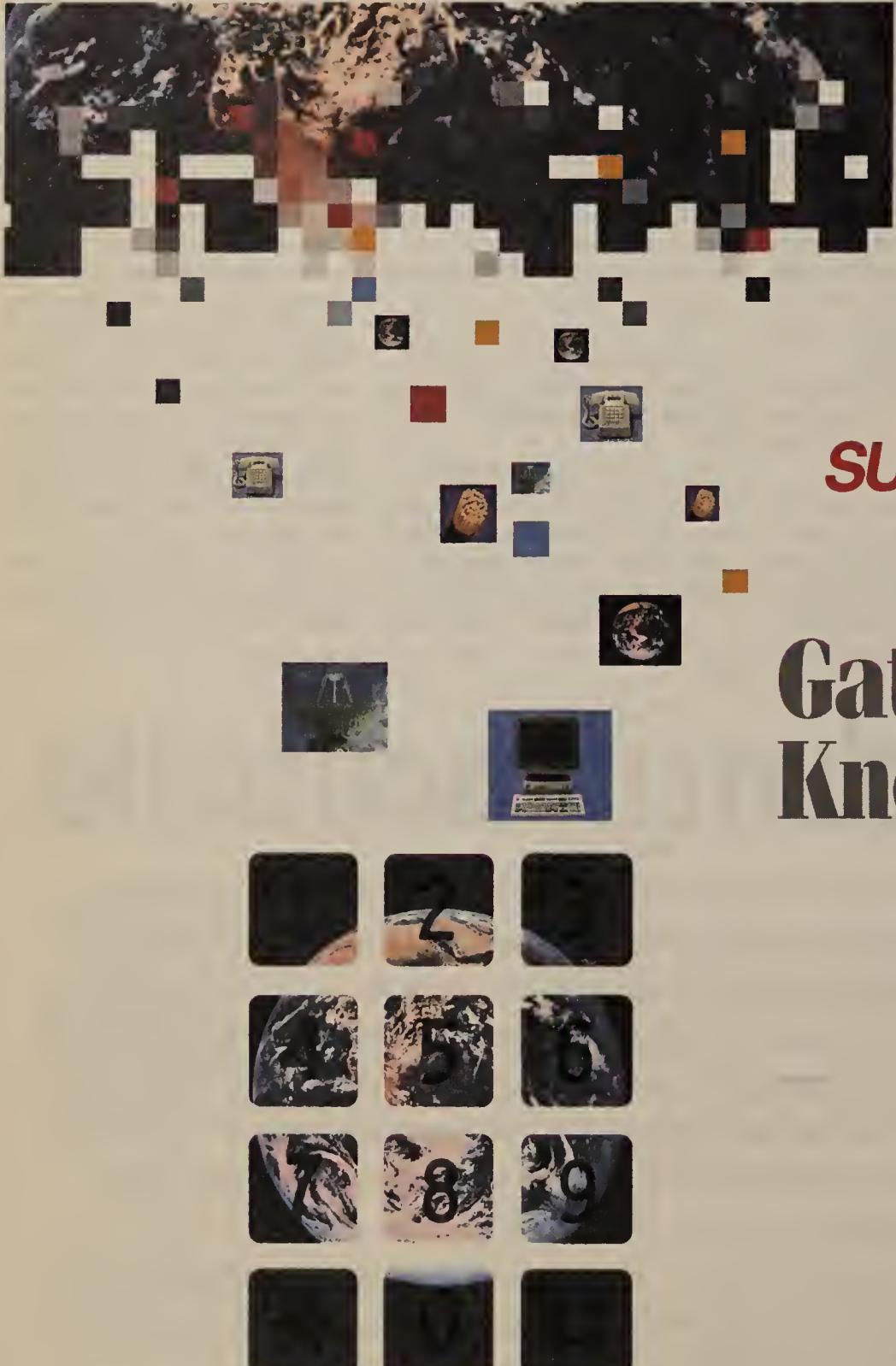
"This is a major coup for StrataCom," said Nick Lippis, president of Strategic Networks Consulting, Inc., a Rockport, Mass., consultancy specializing in advanced network services.

"They're emerging as the frame relay switch vendor of choice," he said. "[BT North America] had to [revamp its frame relay network] if it wanted to win network contracts from companies with large sites that wanted port access speeds at the 256K, 512K or T-1 level."

Sources said the StrataCom IPXs will complement BT North America's packet switches. Traffic from users that do not need more than a 56K or 64K bit/sec access speed will be handled by the packet switches, while traffic from users needing higher speeds will be handled by a StrataCom IPX.

A source close to the project said BT North America has been successful in its efforts to make its Packet Engines interoperable with the IPX. The service carrier expects to wrap up additional interoperability tests in the near future.

StrataCom's development of an interface that supports access speeds of 2.048M bit/sec — the European equivalent of T-1 — was critical to BT North America's decision to add the IPXs to its network because the service will be offered in several European countries by year end. □



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Int'l net to let Army, allies share data

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bases and exchange data electronically.

The MLRS program is carried out at the Huntsville-based MICOM at Red Stone Arsenal, which oversees the development of launch systems such as the Patriot missile. By summer, the Army will connect MICOM through the Defense Data Network to five European project management offices, as well as European production group contractors, through a hub in Luxembourg. Other NATO offices will also be added.

Louis Conter, CALS project officer, said the plan to establish a European hub at the NATO Maintenance Support Activity (NAMSA) office in Luxembourg dovetails well with NAMSA's current efforts to tie together its European NATO partners.

Before the connection to Luxembourg is made, MICOM, one of the largest U.S. CALS sites, will migrate its campus local-area network to a Fiber Distributed Data Interface net. The migration will give more than 10,000 users on Unix workstations, personal computers and Apple Computer, Inc. Macintoshes improved access to MICOM mainframes and each other.

The FDDI net is expected to be fully installed in about a month, and the European MLRS European Network Access net should be ready for use by December. □

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Banyan hints it may go public

continued from page 4

more seriously. "This will give them more credibility" and help them gain market share, Karp said, which would encourage more third parties to develop products for the VINES environment.

One thing Banyan executives did talk about in more detail at last week's conference was the company's product plans for the year.

"We'll deliver more products this year than we have in the company's history," D'Arezzo said.

Announcements made at the show last week included the VINES Communications Gateway 3270, which provides enhanced IBM mainframe connectivity, and the NCR Corp. reseller agreement

("Banyan to ink AT&T deal, roll out DCA-based gateway," NW, April 13).

However, Banyan officials also for the first time said the capabilities of VINES 4.11 and 5.0 will be combined in a single product that will be available this year.

VINES 5.0 is basically an Apple Computer, Inc. Macintosh version of VINES, which officials said will be added to the core VINES functionality.

In addition, Banyan executives reiterated its plans to release later this year a version of VINES to run on The Santa Cruz



Dave Mahoney

Mass., the company is currently working on support for Fiber Distributed Data Interface as well as improving server-to-server, high-speed links. □

Face-lift on tap for Windows 3.1

continued from page 1

ant electronic mail engines.

Windows Plus will be sold along with Windows 3.1, sources said. Like Windows NT, it will draw in other operating system extensions that have been announced and shipped separately to application developers but are not generally available to Windows users.

For example, Windows' facility for channeling data between hosts and personal computer applications, called Open Database Connectivity (ODBC), is shipping to developers. Those that want to include ODBC in their products must ship the ODBC Dynamic Link Libraries (DLL) with

their products. DLLs are code modules that extend Windows.

Microsoft officials admitted the firm is working on peer-to-peer file sharing and messaging and that the extensions will ship with future Windows and Windows NT releases. However, they declined further comment.

Windows Plus' peer-to-peer file and print services will not offer the security or power of a Windows NT server or LAN Manager for Windows NT. Rather, its services will benefit small work groups, similar to Novell, Inc.'s NetWare Lite or Apple Computer, Inc.'s System 7 Macintosh file sharing, one source said.

Since the Windows Plus' peer-to-peer client is based on LAN Manager, it will let users access not only other Windows Plus

peers, but also Windows NT and LAN Manager servers.

The MAPI-compatible messaging services will be similar. The E-mail client will work with a built-in, rudimentary peer-to-peer messaging engine, providing sufficient messaging capabilities for small groups, sources said. But the same client will also be capable of accessing Microsoft's MS Mail 3.0 or other full-featured E-mail services running under MAPI's Service Provider Interface.

Messaging capabilities are also scheduled to ship with Windows NT, but some sources said they were not confident that the capability will be ready in time for the pre-1993 release of the two products. Built-in messaging will also ship with MS-DOS sometime next year, they said. □

NCR to outfit Mead Data

continued from page 2

such as order processing, inventory, human resources and accounts payable — that currently run on Mead Data's IBM MVS mainframe here. The firm's online LEXIS/NEXIS services will not be affected by the purchase, the company said.

Mead Data is one of six companies that have been testing the Cooperation software since it was announced along with the OCCA strategy two years ago ("NCR architects net applications strategy," NW, Feb. 19, 1990). Mead Data is the first firm to announce it will deploy Cooperation in a production environment.

Adopting NCR's open systems architecture has already enabled Mead Data to avoid the expense of upgrading its IBM MVS mainframe, said Gary Whitney, director of system evaluation at Mead Data. It has also reduced the time

it takes to develop new applications and the cost of maintaining mainframe applications.

"NCR has provided a road map [to convert] from our mainframe environment to an open client/server model," he said.

According to Whitney, the downsizing process will be a long-term effort. He declined to specify how many applications will be moved off the mainframe or how many users will be affected. Mead Data has more than 2,000 employees and 50 offices throughout the U.S. and abroad.

The contract calls for the company to purchase an undisclosed number of NCR 3550 supercomputers, NCR 3450 desktop multiprocessors and NCR 3445 departmental servers. These servers will run AT&T's Unix Version 5.4 operating system and support Sybase, Inc.'s SQL Server relational databases. The firm has also implemented some Sun Microsystems, Inc. servers, Whitney said.

The servers will reside on

Ethernet local-area networks supporting DOS-based clients. The clients will run the Cooperation software that provides the presentation services as well as industry-standard application program interfaces that allow developers to build communications protocols and other software routines into OCCA-compliant applications.

The cooperative software

Whitney said Mead Data developed software that sits under the Cooperation software and provides server addresses and mechanisms for accessing data and applications on remote processors.

The Cooperation software will enable Mead Data to develop applications that pull data off multiple diverse platforms and display it in an integrated format on users' workstations, he said.

"The architecture will enable us to integrate applications transparently to users in a way that we couldn't before," he added. □

Firms agree to develop routers

continued from page 4

"This is good for Wellfleet because it needs to increase its distribution," said Michael Howard, president of Infonetix Research, Inc., a consultancy in San Jose, Calif. "And it's good for Fibermux because this is complementary to their product line." Fibermux currently sells a line of bridges but does not have routers, he noted.

The router modules will support Wellfleet's entire range of routing and transmission protocols, Fibermux said. Wellfleet currently supports Apple Computer, Inc.'s AppleTalk, Digital Equipment Corp.'s DECnet Phase IV, Novell, Inc.'s Internetwork Packet Exchange (IPX), Transmission Control Protocol/Internet Protocol and Xerox Corp.'s Xerox Network Systems protocols on its routers.

The company also supports the Open Shortest Path First routing protocols.

Fibermux said the products are expected to be available in early 1993. Pricing has not been set. □

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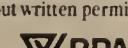
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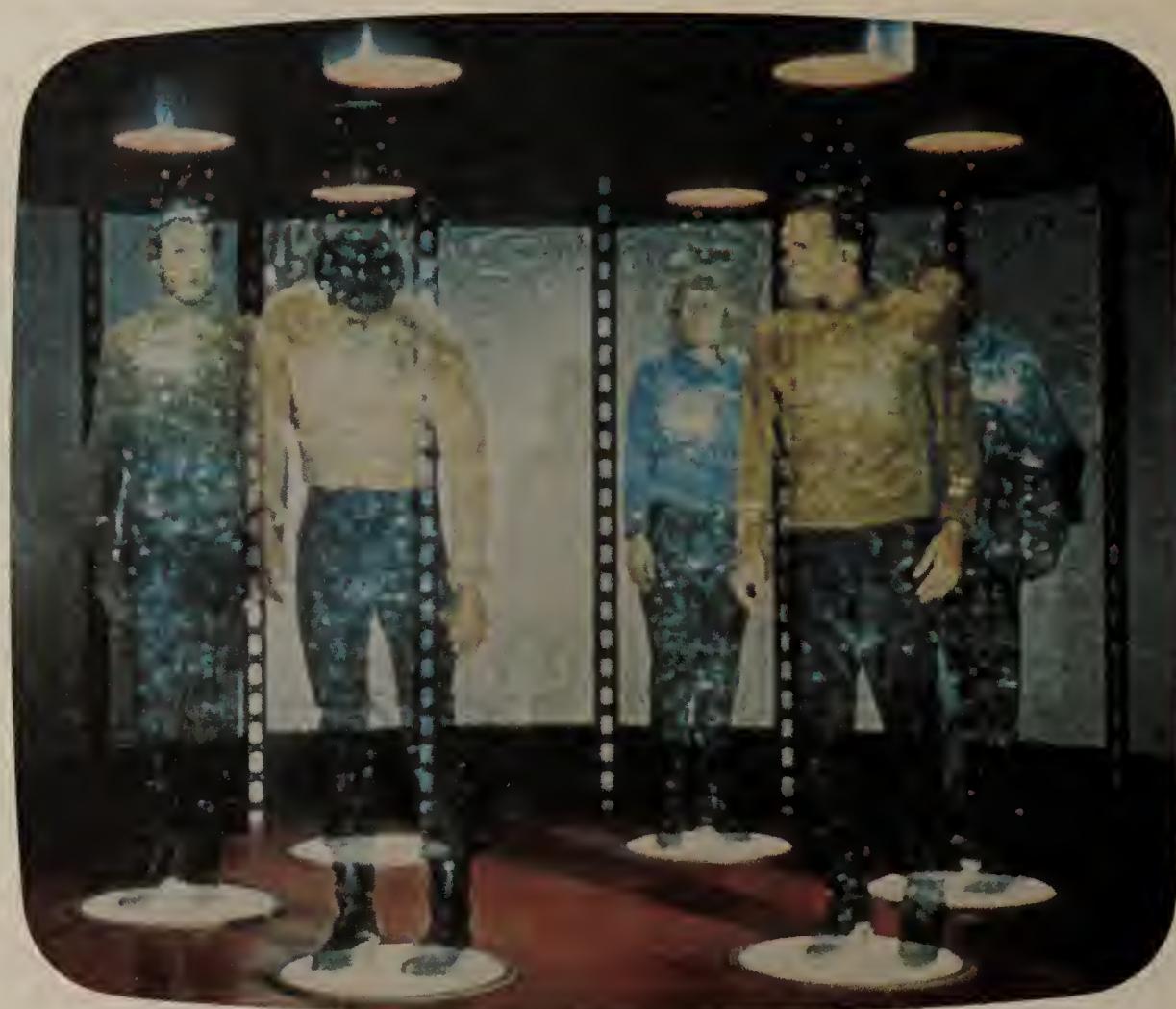
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